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LELAND STANFORD JUNIOR PUBLICATIONS

1904
4

TRUSTEES' SERIES

No. 12

FIRST ANNUAL
REPORT OF THE PRESIDENT
OF THE UNIVERSITY
1903-04

STANFORD UNIVERSITY, CALIFORNIA
Published by the University
1904



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TABLE OF CONTENTS

ATTENDANCE	5
DEGREES GRANTED	5
CLASSIFICATION—	
of Students	6
of Faculty	6
CHARACTER OF WORK.....	7
ENTRANCE REQUIREMENTS.....	7
INSTITUTIONS SENDING STUDENTS —	
Freshman	7
Advanced Students.....	10
METHODS OF RECEIVING STUDENTS.....	10
THE UNIVERSITY AND THE SECONDARY SCHOOLS.....	11
ENTRANCE CERTIFICATE BOARDS.....	12
ACCREDITED SCHOOLS AND SCHOOL INSPECTION.....	12
STUDENTS FOR 1904-05.....	13
THE STANDARD OF ADMISSION	13
THE STUDENT AND HIS WORK.....	13
STUDENT DISCIPLINE.....	14
SOCIAL REGULATIONS.....	15
SELF-SUPPORT OF STUDENTS ..	16
THE MAJOR PROFESSOR SYSTEM.....	16
DEGREES.....	18
INDIVIDUAL OVERSIGHT	19
SUMMARY OF ATTENDANCE.....	19
ALUMNI STATISTICS.....	20

TABLE OF CONTENTS—Continued

TOTAL DEGREES GRANTED—	
by departments.....	20
by years.....	21
DISPERSION OF ALUMNI....	21
OCCUPATIONS OF ALUMNI.....	22
UNIVERSITY ORGANIZATION.....	22
COMMITTEES.....	22
FACULTY CHANGES.....	23
FACULTY ABSENCES.....	24
PUBLICATIONS OF PROFESSORS.....	25
THE UNIVERSITY BUILDINGS.....	32
CALENDAR OF EVENTS.....	33
THE LIBRARY.....	34
The new building.....	35
Growth of the Library..	35
Summary of accessions.....	36
Regulations.....	36
Special collections.....	36
GIFTS.....	37
THE CARNOT MEDAL.....	38
THE MEMORIAL CHURCH.....	38
ATHLETICS.....	41
THE SEASIDE LABORATORY.....	45
Scientific publications of.....	45
INVESTIGATIONS AND SURVEYS.....	47

REPORT

*To the Honorable Board of Trustees,
 The Leland Stanford Junior University.*

DEAR SIRs:

Permit me to present the following report on the condition and work of the Leland Stanford Junior University for the year ending July 31, 1904, together with some discussion of the past history of the University and of matters relating to the current year (1904-05).

THE ATTENDANCE

In the year 1903-04, 1485 students were in attendance. Of these 113 were students in graduate standing, 1229 regularly enrolled undergraduates, and 143 special students, or students of mature age who had not passed the ordinary entrance examinations. The number of women students received at any one time is limited to 500. This number has remained constant for the last two or three years. At present women are not admitted as special students, nor with deficiencies of any kind. By this means the number of those admitted to the freshman class has been kept down so as to leave the total within the required limits.

DEGREES GRANTED

The number of degrees granted during the year was 221, classified as follows:

Bachelors of Arts	197
Bachelors of Laws	6
Masters of Arts	16
Engineer	1
Doctor of Philosophy	1

CLASSIFICATION OF STUDENTS

By subjects the students may be classified as follows—the first column showing the number of major students for the year, the second column the number of students taking work in the various departments during the second semester :

Greek	14	293
Latin	70	180
Germanic Languages	74	345
Romanic Languages	43	270
English	246	527
Psychology and Philosophy	8	195
Education	23	248
History	98	346
Economics	79	131
Law	212	141
Drawing	23	59
Mathematics	31	235
Physics	9	125
Chemistry	77	203
Botany	20	62
Physiology and Histology	73	85
Zoology	27	50
Entomology and Bionomics	12	139
Geology and Mining	118	151
Civil Engineering	85	123
Mechanical Engineering	49	204
Electrical Engineering	94	32
Biblical History and Literature.....		186
Hygiene with Gymnasium		433
Manual Training		95

CLASSIFICATION OF FACULTY

The Faculty is thus classified :

Professors	29
Associate Professors	25
Assistant Professors	26
Instructors	33

Total 113

There have been 32 student assistants, mostly graduates, and other officers and assistants to the number of 39.

CHARACTER OF WORK DONE

The character of the instruction given in each department has been more and more satisfactory with each succeeding year. It is believed that no department is now weak through deficiency of the department faculty. Some important lines of work are wholly unrepresented, but any irregularities of development in this regard may be easily corrected in the future, and the matter of general symmetry of the educational force is not one that affects the individual student. If he finds the work he wants, and finds this work well done, his own needs are met, and students having other needs may be encouraged to go elsewhere, if we are not prepared to give the desired instruction. The principle that work that cannot be well done should not be attempted, is a sound one in university management.

ENTRANCE REQUIREMENTS

From the beginning the University has adopted the unit system of entrance requirements. With the exception of a gradual increase in the number of units required (from 11 to 15 units, a unit being a year's work in the secondary school devoted to any one of a list of approved subjects), there has been no change in the policy of the University since its opening in 1891. The co-ordination of studies in the secondary schools should be left to the schools themselves. In a general way, the high school course—the course of study for admission to college—must cover in all cases much the same ground: English, mathematics, the elements of one or more of the foreign languages, the elements of one or more of the sciences, and something of history. This now forms, and must form, the essential part of every high school course, and any course thus constructed can be fairly adjusted to meet any real demands of the college.

INSTITUTIONS SENDING FRESHMAN STUDENTS

In the Freshman class of 1904-05 the following schools are represented:

California High Schools: Palo Alto (17), Los Angeles (14), Santa Clara (11), Redlands (10), San Bernardino (7), San Diego (7), Pasadena (5), Redwood (5), Sacramento (5), San Jose (5), S. F. Lowell (5), Santa Barbara (6), Bakersfield

(4), Banning (4), Eureka (3), Merced (3), Paso Robles (3), Salinas (3), Ukiah (3), Alhambra (2), Fallbrook (2), Long Beach (2), Los Gatos (2), Oakland (2), Redding (2), Riverside (2), S. F. Mission (2), Santa Cruz (2), Santa Rosa (2), Visalia (2), Alameda (1), Anaheim (1), Arcata (1), Berkeley (1), Campbell (1), Colton (2), Colusa (1), Corona (1), Crockett (1), Hanford (1), Lodi (2), Marysville (1), Mendocino (1), Monrovia (1), Mountain View (1), Napa (1), National City (1), Pacific Grove (1), S. F. Polytechnic (2), San Jacinto (1), San Rafael (1), Santa Ana (1), Santa Monica (1), Selma (1), Stockton (2), Vacaville (1), Watsonville (1); total, 174.

California Normal Schools: San Jose (5), Los Angeles (2); total, 7.

California Private Schools: Throop Polytechnic (10), Lyceum (13), Belmont (6), L. A. Harvard (5), Washburn (4), Bates University School (6), California School of Mechanic Arts (2), Hamlin (2), Harker-Hughes (3), Manzanita Hall (2), Pasadena Classical School for Boys (2), Pomona College Academy (2), Anderson Academy (1), Boone's University School (1), Chaffey College (1), Hoitt's (2), Marlborough (1), University of Pacific Academy (1); total, 67.

University of California (2).

Colorado: East Denver H. S. (3), Ft. Collins H. S. (1), Colorado College (1), West Denver H. S. (1).

Connecticut: Putnam H. S. (1).

Hawaii: Honolulu H. S. (1), Oahu College (2).

Idaho: Lewiston H. S. (1).

Illinois: Armour Institute (2), Mattoon H. S. (2), Rockford H. S. (2), Aurora H. S. (1), Chicago N. Div. H. S. (1), Elgin H. S. (1), Chicago Hyde Park H. S. (1), Freeport H. S. (1), Chicago John Marshall H. S. (1), Lewis Institute (1), University of Illinois (1).

Iowa: Alton H. S. (1), Cedar Rapids H. S. (1), Emmetsburg (1), Glidden H. S. (1).

Indiana: University of Notre Dame (2), Brazil H. S. (1), Culver Military Academy (1), Indiana University (1), Lebanon H. S. (1), Madison H. S. (1).

Kansas: Atchison College Preparatory School (1).

Massachusetts: Franklin H. S. (1), Harvard University (1), Malden H. S. (1), Mt. Hermon School (1), Plymouth H. S. (1).

Maryland: Baltimore Polytechnic (1), Maryland College (1).

Michigan: Bay City H. S. (1), Michigan Military Academy (1).

Minnesota: Minneapolis H. S. (2), University of Minnesota (1).

Missouri: Kansas City H. S. (1), Kansas City Manual Training H. S. (1), Park College (1), St. Louis H. S. (1), Warrensburg S. N. S. (1).

Montana: Butte H. S. (2), Custer Co. H. S. (2), Kalispel H. S. (1), Montana State College (1).

Nebraska: University of Nebraska (2).

Nevada: Nevada State University (1).

New York: Adams H. S. (1), Albany Female Academy (1), Auburn H. S. (1), Buffalo Central H. S. (1), Cornell University (1), Flushing H. S. (1), Fredonia S. N. S. (1), Geneva H. S. (1), Masten Park H. S. (1), Olean H. S. (1), Saranac Lake H. S. (1), University of Rochester (1).

Ohio: Sandusky H. S. (4), Cleveland Normal (1), Mansfield H. S. (1), University of Cincinnati (1).

Oregon: Portland H. S. (3), Portland Academy (3), Bishop Scott Academy (1), Willamette University (1).

Pennsylvania: Bradford H. S. (1), Bucknell University (1), Geneva College (1), Girard College (1), Mercersburg Academy (1), Norristown H. S. (1), Pittsburg Academy (1), Swarthmore College (1).

Rhode Island: Providence Technical H. S. (1).

South Dakota: South Dakota Agricultural College (1).

Texas: Southwestern University (1).

Utah: Ogden H. S. (2), Salt Lake H. S. (1), Utah Agricultural College (1), Normal Dept. Univ. of Utah (1).

Washington: Tacoma H. S. (1), Vancouver H. S. (1), Whatcom H. S. (1).

Wisconsin: St. Johns Military Academy (2), Eau Claire H. S. (1), Grafton Hall (1), University of Wisconsin (1), Wayland Academy (1), Whitewater S. N. S. (1).

Canada : Annpin H. S. (1).
Chile : University de Chile (1).
Holland : Rijks Hoogere Burger-school, Goude (1).
Japan : Tokyo Higher H. S. (1).
Mexico : National Preparatory School (3).

INSTITUTIONS SENDING ADVANCED STUDENTS

Of the 576 new students in 1904, 126 came with advanced standing from other institutions of collegiate rank. Among graduates the following institutions are represented : Albion College, University of California, Colorado College, Cornell College, Colorado Agricultural College, Cornell University, Doane College, University of Georgia, Hamline University, Harvard University, Keiogi-jiku College, Indiana University, University of Kansas, Lawrence University, Marietta College, University of Michigan, Mills College, Monmouth College, University of Nebraska, University of Nashville, Ohio Wesleyan University, Oregon Agricultural College, University of North Dakota, University of the Pacific, Pacific Methodist College, Penn College, Purdue University, Queen's University (Canada), University of Vienna, Whitman College, Whittier College.

METHODS OF RECEIVING STUDENTS

The University admits to its freshman class (1), on examination; (2), on recommendation from approved schools, and (3), by combination of these two methods. So far as the actual practice is concerned, all of these methods have yielded satisfactory results. The number of students entering wholly on examination, however, is so small as to have no appreciable effect upon our entering class. The great majority of freshmen enter wholly or mainly on recommendation, and the general policy of the University has been shaped so as to favor the recommendation plan. Entrance examinations often fail as tests of the student's advancement. They encourage the growth of coaching schools, in which students are prepared for examinations without training of real value. The vast extent of the district from which our students are drawn would make a general system of examinations difficult and expensive. Statistics show that on the average the students entering Stanford University come from a distance of about one thousand (1050 in 1903-04) miles. In some of the large universities of

the East, the average distance traveled ranges from twenty to fifty miles. It is impracticable for Stanford University to hold examinations in the various centers, still more impracticable to expect freshmen to travel a thousand miles with no certainty of being able to pass the examinations at the end of the journey. Entrance examinations are useful and necessary as supplementing and complementing the recommendation system, and such examinations, in all subjects in the entrance list, are held at the University in August and January. The University also accepts the results of examinations given by Harvard, Yale, Cornell, Chicago and other institutions, and also the examinations of the College Entrance Board. The examinations of this Board are held in all parts of the United States, and to some extent in foreign countries. It is not impossible that the natural growth of these uniform Board examinations may make it unnecessary for Stanford to hold any entrance examinations whatever.

THE UNIVERSITY AND THE SECONDARY SCHOOLS

It is desirable that the University be educationally in close touch with the public school system, and that the transition from the high school to the university shall be rendered as natural and frictionless as that from the grammar school to the high school. This principle was admirably stated in the report of the Committee on College Entrance Requirements before the National Educational Association at Los Angeles in 1899: "College courses ought to be so adjusted that every pupil at the end of a secondary course, recognized as excellent both in the quality and quantity of its work, may find the doors of every college swing wide open to receive him into an atmosphere of deeper research and higher culture along the lines of his mental aptitudes." The "recommendation" or "certificate" system endeavors to test the excellence in quality and quantity of work by an actual and frequent inspection of the preparatory school by competent, accredited representatives of the university. But this inspection is much more than a mere testing of results. If frequent and wisely directed, it tends to a better understanding between college and preparatory schools, and insures mutual respect and co-operation. It means, on the part of the college, recognition of the broad, general needs and objects of the high school, and it brings to the high school needed support toward higher standards and better work.

ENTRANCE CERTIFICATE BOARDS

As indicating a general recognition of the importance to the university of such co-operation with the secondary schools, it is pertinent to mention the recent formation of the New England College Entrance Certificate Board, and the work in this connection of the Board of Inspectors of the North Central Association of Colleges and Secondary Schools. The New England Board is a joint creation of all the colleges of New England admitting on certificate, and it undertakes to cover, for all these colleges, the high schools and preparatory schools of New England. The North Central Association is endeavoring to do this same work for pretty nearly all the territory of the Upper Mississippi Valley. In addition to these accrediting boards, various universities have made provision for the systematic inspection of schools, and for accrediting both high schools and private preparatory schools.

ACCREDITED SCHOOLS AND SCHOOL INSPECTION

Stanford University has made no provision for inspecting secondary schools, and has no list of "accredited schools", strictly speaking. Admission on recommendation has, nevertheless, been made possible without such inspection, particularly because of the efficient system of accrediting schools developed by the State University of California, and because it is possible to make use of the accrediting of the Boards referred to above and of the various state universities. So far as California is concerned, there is no occasion for any separate accrediting by Stanford. With regard to schools outside the State, the information published by these Boards and accrediting universities is unfortunately only general and the accrediting systems of the various state universities are by no means uniform or of the same standard of excellence. It would be distinctly to the advantage of the University in its relations to the preparatory schools if the University could become a co-operative member of the New England Entrance Certificate Board, and of the North Central Association, and if it could promote an extension of the territory covered by these inspecting Boards, or the establishment, if necessary, of an Accrediting Board for the areas not now covered by these Boards nor by the more careful of the State university systems. As a step in this direction, the appointment of an instructor in the Department of

Education who could give at least half of the year to visiting schools not now adequately covered by existing systems, and to the promotion generally of co-operative relations between the University and preparatory schools, is desirable.

STUDENTS OF 1904-05

In the year 1904-05, 335 students have been admitted wholly or in part on certificate; 4 have been admitted on examination only; 51 have been admitted as special students without examination; and, 118 come from other colleges as graduate students or with advanced standing. Of those admitted to the freshman class from preparatory schools or on examination, 192 were subject to conditions; 143 were in full standing.

THE STANDARD OF ADMISSION

It is believed that the standard of admission to the freshman class at the University should not be made higher. To require more than the high schools at the best can give is to force students into private finishing schools. This involves a considerable expense in money to no effect, for the best coached members of the entering class seldom prove to be the best students. Moreover it is not best in general that students should remain in the home high school after the age of 18. In a sense, higher education begins when a student leaves home. The stimulus of new friendships, of more advanced teachers, of the University atmosphere—these often count for more than the studies which are pursued.

In the four years allotted to secondary work, it is not possible for the preparatory schools to do much more than they are now doing, and the addition of another year, impossible for financial reasons to the smaller high schools, would be a doubtful gain to education under most conditions. In time we may hope that the burden of the freshman and sophomore years in California may be largely assumed by the smaller colleges, and perhaps by the State normal schools, thus affording relief to the Universities.

THE STUDENT AND HIS WORK

In the University it is expected that each student shall carry about fifteen hours of lectures or recitations (three hours in the laboratory counting as one recitation hour) per week. A few

are able to carry more, thus sometimes shortening the four years' period of undergraduate study. A certain number are permitted, for different reasons, to take less than the usual amount of work. It is expected that each student shall pass the examinations in at least two-thirds of his work. Those failing to accomplish this are referred to the Committee on Delinquent Scholarship. Those whose deficiencies are serious are dropped from the rolls, but may be reinstated after one semester and permitted to try again. Special students whose names have been dropped from the rolls are readmitted only after passing the entrance examinations. By this means, somewhat rigidly enforced, idle and incapable students have been practically eliminated from the institution.

✓ In an article in the magazine *Out West*, Mr. W. H. Thomson, an undergraduate student in the University, has discussed this phase of student life from the student's point of view. Mr. Thomson says: "One fact stands out prominently in any study of student life at Stanford; the place is conceived to be a place for work. It is no detaining school for the sons of rich men to sport out their cubhood days until ready to be shoved into the stream of things with men of the world. The gods that made it decreed that by work and work alone one may work out his educational salvation. * * * To 'flunk' at Stanford is to fail in some study or other; to 'flunk out' is to fail, probably, in two or more, so that the faculty 'committee on standards' requests with an edged politeness that you remain off the campus for one semester at least until you are supposed likely to do better work. But when the holidays come again and the reunion in January takes place, those that return know that the two months' toil has not been in vain, that they can gather some confidence to themselves from the mere fact of being on the Quad. Some fifty or sixty of their fellows will be missing, 'flunked out,' for Stanford has about the sternest way of uprooting unproductive olive trees of any institution in the country."

STUDENT DISCIPLINE

The work of the Committee on Delinquent Scholarship has been the most efficient agency in the discipline of the institution. Those students who are wasting their time and strength in any form of dissipation are sure to fall under the cognizance of this Committee. There is little occasion for discipline of any other

form, if the regulations of this Committee are justly and firmly carried out. In the present year, 1903-04, 120 students were dropped from the rolls for deficiencies in scholarship; 137 others were warned. Special efforts are made by the members of the Committee to put inexperienced young men on the right track in their work. Students are not allowed to neglect their daily work with a view to making up lost time by cramming at the end.

The essential element in the discipline of the University is that every student be kept at work. Those who are not able or willing to take hold of something seriously are sent away as soon as this fact is manifest. As a rule the behavior of the students, men and women, is above reproach. As a result of the limitation in numbers, the women of the University are exceptionally mature in character as well as strong in scholarship. They are for the most part to be fully trusted in matters pertaining to their own conduct, and the regulations of the dormitories and sororities are largely framed by themselves. As a protection against thoughtlessness and especially of mistrust on the part of those outside of the University, certain general regulations are in force. These have arisen partly from the action of the students themselves, partly from suggestions of the Committee on Student Affairs.

• SOCIAL REGULATIONS

The number of social events at the University is limited to what is considered a reasonable range of privilege. Those recognized occur on Friday or Saturday nights. All of them, of whatever character, close at midnight. No University woman is expected to attend any ball or similar function held away from the Campus. All parties of whatever sort must be properly chaperoned. Each sorority maintains a house-mother approved by the Committee on Student Affairs, who is held responsible for the enforcement of the regulations of the sorority. Calls from young men are received in the period from Friday evening to Sunday evening only. A young woman leaving the campus for the night secures the permission of the matron of the hall or the house-mother of the sorority, leaving a memorandum of her movements. Outside the grounds the same regulations are in force, so far as are practicable. Young women are not allowed to remain in boarding houses also occupied by young men. It is hoped that

before many years provision will be made on the campus for all the women of the University.

In general, while it is expected that each student will be a free agent, taking care of his or her own conduct, those whose conduct is unworthy will not be retained. It is further essential that each young woman should of her own accord avoid not only actual folly and indecorum, but all appearance or suspicion of such action. That there exists at Stanford University a strong student sentiment against frivolity and against dissipation is a matter for congratulation, and in the cultivation of this sentiment the work of the Committee on Student Affairs has been eminently successful.

SELF-SUPPORT OF STUDENTS

The number of students who are partially or wholly self-supporting is greater at Stanford University than at most institutions of its size. Probably 300 of the men and upwards of 50 of the women are wholly dependent on their own exertions, past or present, for their support. Many others are dependent in part upon their own earnings. Among the students wholly or partly dependent upon themselves are many of the ablest men and women in the University.

THE MAJOR PROFESSOR SYSTEM

Among the arrangements more or less peculiar to Stanford University, the most important is that which has come to be known as the "major professor system." The entrance requirements admit the student to all courses alike. All lines of work are freely, and so far as may be, equally elective. Each student is, however, required to select some one line of work as his major study. This he pursues more or less continuously for his whole college course. The successive steps in this line of work once chosen become required studies. The professor in charge of this work becomes his major professor or general adviser. Under this professor he receives his degree of Bachelor of Arts, the name of the department in which the major subject lies being printed on his diploma. The study card of each term must be approved by the major professor before it is accepted by the Registrar. In general it is customary for the major professor to require about 30 of the 120 hours of undergraduate work to be

in the major subject and about 10 hours in related studies necessary for a broad understanding of the subject in question, the remaining 80 hours being freely elective. In some departments, notably those in Engineering, the range of subjects necessary to a mastery of the special field is so wide, that in the nature of things most of the course is prescribed. But the subjects thus prescribed are adapted to the needs and purposes of the individual student, so that no one is required to take what is not actually best for him to take in order to receive a degree. This arrangement gives most of the flexibility of the elective system, with the great advantage of stability of direction of work, and the still greater advantage of adaption to individual needs.

The major professor, a man successful in the line the student hopes to follow, is in the nature of things likely to be the best possible adviser. The educational value of advanced study in any subject is greater as a rule than that of elementary work in some other field. Moreover, in every department the major students set the pace for the others; the work of the class-room gains in interest by being related to life, and the teacher is stimulated by the presence of students eager for his work or devoted to his personality. It is true that many first year students are not ready to make their final choice. Such students cannot go amiss by selecting at the beginning, English, history, or one of the languages or sciences as a major subject, choosing again at the beginning of the second year as their personal powers, tastes or needs develop. No obstacle is placed in the way of a change of major subject, except that which is inherent in the nature of things. The work done in the first subject passes into the category of electives and the back work in the new subject must be made up.

Through the major-subject system the student is brought into close relation with his teacher, to the advantage of both. This degree of close relation, supposed to be the special advantage of the small college, is equally attainable in a large one under this system. It is true that in some departments this work of supervision is done with more care than in others. This must be so in the nature of things, and it is a matter considered by the student in his choice of major subject or major professor. But in all cases the addition of this function to the list of department duties enhances the fitness and value of the instruction given.

The prescribed curriculum of twenty to forty years ago is practically abandoned by most progressive institutions. It has always tended to discourage high scholarship by its lack of adaptation to individual needs, its tendency to suppress originality and to bring students to a common level. On the other hand, the system of free election which is displacing it, permits diffusion of interest and waste of energy. The "group" system has been devised to remedy this condition, and of the different types of the group system, the one adopted at Stanford University seems best fitted to the needs of our students.

DEGREES

From the first the University has granted the single degree of Bachelor of Arts to all who have finished the undergraduate course of four years. There is no single subject prescribed for the degrees of Bachelor of Arts, its significance as at Johns Hopkins, Harvard, Cornell, and other institutions, being substantially that of graduation from the college. This policy is becoming general among the institutions of America, and I shall make no argument in its favor here. The attempt to indicate in the degree or title granted to graduates the exact nature of their college studies is an impossibility, and the multiplication of degrees and titles tends to bring college honors into disrepute.

The degree of Master of Arts (A. M.) and Doctor of Philosophy (Ph. D.) have been granted on the usual terms, but with rather more than usual insistence on the promise of scholarly ability, and in the case of the Doctor's degree, of fitness for independent research. The number of Doctor's degrees granted each year (less than two on the average) seems relatively small. This is due mainly to the fact that our own graduates are advised to pursue their advanced studies in part at least in the eastern states or in Europe. The value of "university migration" is generally recognized by the professors and advanced students. Besides this, no students are brought from other institutions to swell the ranks of the candidates for the doctorate through the offer of endowed fellowships.

In the departments of Engineering the advanced degree of Engineer is granted to Bachelors who have completed an additional year of advanced study in residence; and the degree of LL.B. to graduates who have devoted two additional years to the study of law, the first year of law being treated as an under-

graduate study open to election by students in any department. Except under extraordinary circumstances, no degree is granted to special students in law who have not received the college degree.

No degrees are granted on examination without at least a year of actual residence, and no honorary degrees of any kind are granted. The tendency in our universities is certainly toward the simplification and unification of degrees, and perhaps toward their final abolition.

INDIVIDUAL OVERSIGHT

We believe that the work of the undergraduate student should be taken more seriously than is the case in most large institutions, and that the number of students should not be so great that each cannot receive individual attention from the professors. The lack of individual oversight is connected with the placing of very large classes in the hands of untrained and underpaid instructors. As final results under such a system we have wasted effort on the part of the students, lack of interest in work, loss of the sense of the value of time, and the various evils of dissipation, neglect of work, and the passing of examinations through the help of professional coaches. From all these Stanford University has been comparatively free, and this through the attention given by the professors to the work and purposes of the individual student.

SUMMARY OF ATTENDANCE

The records show that since the opening of the University in 1891 its attendance has practically trebled. The total attendance to and including the year 1903-04 has been 14,918. By years the numbers are as follows:

1891-2	559	1898-9	1153
1892-3	764	1899-0	1331
1893-4	975	1900-1	1389
1894-5	1100	1901-2	1295
1895-6	1069	1902-3	1483
1896-7	1091	1903-4	1485
1897-8	1224		
Total			14,918

The total attendance for the present year, 1904-5, numbers 1,553.

ALUMNI STATISTICS

In May, 1904, the Alumni Association published a directory of its members from which we may quote some interesting statistics. On May 1, 1904, there was a total of 1,753 graduates of the University. To this number 161 were added by the graduating class of 1904. Of these 1,753 degrees the following distribution by departments is made—the first column giving the total number of degrees conferred for each department, the second, the number of duplicate degrees, *i. e.* graduate degrees, to persons receiving the undergraduate degree, and the final column the number of persons receiving degrees:

DEGREES GRANTED—BY DEPARTMENTS

Greek	39	3	36
Latin	122	8	114
Classical Philology	10	1	9
German	105	3	102
Roman Language	41	2	39
English	275	12	263
Psychology	6	1	5
Ethics	5	..	5
Binomics	5	..	5
Education	82	3	79
History	235	16	219
Economics	98	3	95
Law	186	16	170
Mathematics	63	8	55
Physics	24	6	18
Chemistry	94	6	88
Botany	40	8	32
Entomology	15	4	11
Hygiene	2	..	2
Physiology	138	15	123
Zoology	51	10	41
Geology	73	8	65
Drawing	5	..	5
Civil Engineering.....	61	..	61
Mechanical Engineering	35	..	35
Electrical Engineering	70	5	65
Steam Engineering	1	..	1
Astronomy	2	..	2
Philosophy	4	..	4
Not specified	5	..	5
Totals	1892	139	1753
Degrees conferred	1892		
Duplicate degrees		139	
Total number of Alumni.....			1753

By years the degrees divide as follows :

DEGREES GRANTED—BY YEARS

Year.	A. B.	A. M.	Ph. D.	B. L.	Engi- neer.	Men.	Women	Total.
1892	29	9	..	..	..	34	4	38
1893	30	20	..	..	I	45	6	51
1894	47	12	I	..	I	46	11	57
1895	168	10	..	..	..	131	47	178
1896	169	19	4	..	2	142	52	194
1897	144	22	4	..	I	116	55	171
1898	168	10	..	..	I	103	76	179
1899	144	11	2	..	I	105	53	158
1900	147	20	..	..	..	103	64	167
1901	197	12	2	I	..	111	101	212
1902	182	18	2	3	..	113	92	205
1903	208	19	I	8	..	146	90	236
Jan. 1904	39	2	..	I	..	18	24	42
Totals	1672	184	16	13	7	1215	677	1892

DISPERSION OF ALUMNI

The dispersion of these graduates is shown by the following table of residences :

California	1091	New Mexico.....	11
Washington	66	Ohio	11
New York	53	Wisconsin	11
Illinois	35	Idaho	9
Oregon	35	Maryland	7
Colorado	34	Michigan	6
Pennsylvania	30	Texas	5
Indiana	22	Connecticut	5
Massachusetts	19	Minnesota	4
District of Columbia....	17	New Jersey.....	4
Hawaii	17	Arkansas	3
Missouri	16	South Dakota.....	3
Montana	16	Alaska	2
Nevada	15	Georgia	2
Utah	15	Kansas	2
Arizona	14	Nebraska	2
Philippines	13	New Hampshire	2
Iowa	11	Oklahoma	2

Rhode Island.....	2	China	5
South Carolina.....	2	England	4
Tennessee	2	Transvaal	4
West Virginia.....	2	Australia	3
Kentucky	1	Brazil	3
Louisiana	1	Cuba	1
Maine	1	Germany	1
Mississippi	1	India	1
Wyoming	1	Netherlands	1
Japan	11	Unknown	30
Mexico	8	Deaths	47
Canada	5		

OCCUPATIONS OF ALUMNI

The occupations into which these alumni have gone are as follows:

Teachers	532	Chemists	26
Lawyers	149	Ministers	15
Students	114	Farmers	14
Business men.....	101	Librarians	13
Physicians	58	Real estate and insurance	12
Civil Engineers.....	54	Public offices.....	11
Miners or Mining Eng'rs	52	Scientific positions.....	10
Electrical Engineers....	49	Miscellaneous	22
Mechanical Engineers...	22	Married women.....	139
Journalists	36	No occupation given....	255
Government positions...	26	Deaths	47

UNIVERSITY ORGANIZATION

The system of Faculty organization prepared by a joint committee of professors and trustees in 1904 and adopted by the Board of Trustees is in successful operation. The following is a list of the standing committees of the Academic Council by which the operations of the Faculty are carried out:

COMMITTEES

1904-5.

ADVISORY BOARD: Stillman, chairman; Murray, secretary; Branner, Abbott, Marx, Sanford, Hoskins, Gilbert, Angell.

Administrative Committees.

1. STUDENT AFFAIRS: Green, Griffin, Lenox, Show, Rogers.
2. ATHLETICS: Angell, Adams, Snow, Searles, Durand.
3. PUBLIC EXERCISES: Newcomer, Duniway, Farrand, Rolfe, Moreno.
4. LITERARY CONTESTS: Duniway, Alden, McLean, Elmore, Lewers.
5. PUBLIC HEALTH: Snow, Gilbert, Show.
6. DELINQUENT SCHOLARSHIP: Gilbert, Elliott, Peirce, Murray, Hoskins.

Academic Committees.

1. EXECUTIVE COMMITTEE: Jordan, Branner, Elliott, Fairclough, Newcomer, Campbell, Gilbert, Green, Sanford, Farrand, McLean, Clark, Wing.
2. ADMISSION AND ADVANCED STANDING: Elliott, Show, Matzke, Hoskins, Snedden.
3. REGISTRATION: Elliott, Fish, Heath, Snow, McLean.
4. GRADUATION: Elliott, Marx, Matzke, Price, Rogers.
5. SCHEDULE AND EXAMINATIONS: Elliott, Abbott, Murray, Campbell, Farrand.
6. GRADUATE STUDY: Murray, Dudley, Angell, Hoskins, Matzke.
7. LIBRARY: Stillman, Farrand, Franklin, Wing, Adams.
8. UNIVERSITY PUBLICATIONS: Fairclough, Duniway, Smith, Anderson, McFarland.
9. ENTERTAINMENTS: Young, Marx, Adams, Searles, Seward.

FACULTY CHANGES

The changes in the Faculty of the University for the current year are the following:

Prof. Albert William Smith, of the chair of Mechanical Engineering, has resigned, having been appointed Director of Sibley College in Cornell University.

Prof. William Frederick Durand, late professor of Naval Engineering at Cornell University, a graduate of the United States Naval Academy, has been chosen professor of Mechanical Engineering in place of Professor Smith.

In the Department of Law, Assistant Professor John Ellwood Blair and Instructor George Luther Clark have tendered their resignations. Mr. William Cullen Dennis, a graduate of Harvard University and of Harvard Law School, late Assistant Professor in the University of Illinois, has succeeded Mr. Blair, and Mr. Arthur Mason Cathcart, a graduate of Stanford University, also for a time a student in the Harvard Law School, has taken Mr. Clark's place. Assistant Professor John T. Burcham of the department has tendered his resignation and Mr. Henry W. Ballantine, a graduate of the Harvard Law School has been chosen instructor in his place.

In the Department of English, Professor Ewald Flügel has received the generous support of the Carnegie Institution to enable him to complete the Chaucer Dictionary on which he has been engaged for several years. To this end he is absent on sabbatical leave for the year, and with him as his assistant, Instructor Edward Kirby Putnam. To fill the vacancies in the department, Mr. Howard Judson Hall (Stanford, 1896), late professor of English in the University of Arizona, Mr. Charles Lewis Story (Stanford, 1898), late teacher of English in the Missouri State Normal School at Warrensburg, and Mr. John Kester Bonnell (Stanford, 1903), late Harvard Club fellow at Harvard University, have been appointed instructors. In the illness of Mr. Story, Mr. Francis H. White, a graduate of Princeton University, has been made temporary instructor.

In the Department of Applied Mathematics, Mr. George Irving Gavett, has been appointed instructor, and in Systematic Botany and Forestry, Dr. Pehr Hjalmar Olsson-Seffer.

In Chemistry, Dr. Alvin J. Cox, and in Bionomics, Mrs. Ruby Green Bell, have been advanced from the position of Assistant to that of Instructor.

In the beginning of the year (1904-5) promotion from the title of Instructor to that of Assistant Professor was granted to the following persons: Halcott C. Moreno, in Applied Mathematics, Clara S. Stoltenberg, in Physiology, and Samuel S. Seward Jr., in English.

FACULTY ABSENCES

The following persons are absent on sabbatical leave for the year 1904-5: Prof. Ewald Flügel, Prof. Robert

E. Allardice, Prof. Vernon L. Kellogg, Assoc. Prof. Herman D. Stearns, and Assoc. Prof. Ellwood P. Cubberley.

Absent on leave without pay for the purpose of advanced study are the following: Asst. Prof. Thomas A. Storey in Hygiene, Instr. Anthony H. Suzzallo in Education, and Instr. William A. Manning in Applied Mathematics.

PUBLICATIONS BY PROFESSORS

As showing the literary and scientific activities of the instructors in the University, a list of the papers published by them for the year is herewith given:

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- Alden, Raymond Macdonald: An old English play in California, *Out West*, Aug., 1903. Consolatio, An Ode, S. F., Paul Elder, 1903.
- Anderson, Melville Best: Byron in definitive form, *Dial*, June 16, 1904.
- Arnold, Ralph: Paleontology and Stratigraphy of the marine Pliocene and Pleistocene of San Pedro, Calif., Calif. Acad. of Sci. Memoirs, June, 1903.
- Barnett, Samuel Jackson: Elements of electromagnetic theory, N. Y., Macmillan, 1903. Some experiments on the polarization and recovery of cadmium cells, *Physical Rev.*, Feb. 1904.
- Bell, Ruby Green: (with V. L. Kellogg) Variations induced in larval, pupal, and imaginal stages of *Bombyx mori* by controlled varying food supply, *Science*, Dec. 11, 1903.
- Blichfeldt, Hans Frederick: On the order of linear homogeneous groups, Am. Math. Soc. Trans., July, 1904. On the functions representing distances and analogous functions *Am. Jour. of Math.*, Oct., 1903. On the order of linear homogeneous groups, Am. Math. Soc. Trans., Oct., 1903.
- Branner, John Casper: Notes on the geology of the Hawaiian islands, *Am. Jour. of Sci.*, Oct., 1903. Stone reefs of Brazil,

- their geological and geographical relations, with a chapter on the coral reefs, *Mus. Comp. Zool. Bull.*, May, 1904.
- Science in the south, an address before the University of Tennessee, *Univ. of Tenn. Index*, Jan., 1904.
- Topographic feature of the hanging valleys of the Yosemite, *Jour. of Geol.* Sept.-Oct., 1903.
- Is the peak of Fernando de Noronha a volcanic plug like that of Mont Pelé? *Amer. Jour. Sci.*, CLXVI, 442-444. Dec. 1903.
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- Campbell, Douglas Houghton: Studies on the Araceæ, the embryosac and embryo of Aglaonema and Spathicarpa, *Ann. of Botany*, Sept., 1903.
- Clark, Arthur Bridgman: Art in handicraft, *Western Jour. of Educ.*, March, 1904.
- Clark, George Archibald: Stanford University, Encyclopædia Americana; Seals and Seal Fisheries, Encyclopædia Americana.
- Cox, Alvin Joseph: (with R. Abegg) Chromat, bichromat, und chromsäure, *Zeitschr. f. Physikal. Chem.*, July, 1904.
- Ueber basische quecksilbersalze, *Zeitschr. f. Anorgan. Chem.*, June 1904.
- (with R. Abegg) Ueber die löslichkeitsverhältnisse einiger schwerlöslicher silbersalze, *Zeitschr. f. Physikal. Chem.*, July, 1903.
- (with J. M. Stillman) On certain factors influencing the precipitation of calcium and magnesium by sodium carbonate, *Am. Chem. Soc. Jour.*, July, 1903.
- Dodge, Melvin Gilbert: Delta Upsilon Decennial Catalogue, 1902; Book reviews and the librarian, *Lib. Assoc. of Calif. Pub.*, July, 1904.
- Dudley, William Russell: Forestry notes, *Sierra Club Bull.*, Jan., 1904.
- Duniway, Clyde Augustus: French influence on the adoption of the federal constitution, *Am. Hist. Rev.*, Jan., 1904.
- Elmore, Jefferson: Livy's account of the dramatic satira, *Am. Phil. Assoc. Trans. and Proc.*, 1903.
- Elliott, Orrin Leslie: Review of Stanwood's American tariff controversies, *Dial*, April 1, 1904.

- Fairclough, Henry Rushton: Terentius' Andria, with introduction and notes, Boston, Allyn & Bacon, 1904. Recent archæological discoveries in Crete, *Univ. of Toronto Monthly*, Dec., 1903.
- Farrand, Max: Compromises of the Constitution, *Am. Hist. Rev.*, April, 1904.
- Fisher, Walter Kendrick: Albatross dance at sea, *Condor*, May, 1904. California vulture in San Mateo Co. *Condor*, March, 1904. Home Life of a buccaneer, *Condor*, May, 1904. Notes on birds peculiar to Laysan Island, Hawaiian group, *Auk*, Oct., 1903. Notes on the birds of Hoopa Valley, California, *Condor*, March, 1904. The Laysan Albatross and its dance, *Scientific American*, Dec 12, 1903. On the habits of the Laysan Albatross, *Auk*, Jan., 1904. *Aythya callaris* in San Mateo County, Cal., *Condor*, Jan. 1904. Three Boobies interviewed, *Condor*, July, 1904. Redwood belt of Northwestern California, *Condor*, Sept.-Nov., 1903. Road Runners eat young mocking birds, *Condor*, May, 1904. Two unusual birds at Stanford University, *Condor*, July, 1904.
- Franklin, Edward Curtis: (with H. P. Cady) On the velocities of the 'ions' in liquid ammonia solutions, *Am. Chem. Soc. Jour.*, May, 1904.
- Gilbert, Charles Henry: (with E. C. Starks) Fishes of Panama Bay, Cal. Acad. of Sci. Memoirs, Feb., 1904.
- Goebel, Julius: Herder und Goethe, *Goethe Jahrb.*, 1904. Deutschtum in den Vereinigten Staaten v. Nord-Amerika, Munich, Lehmann, 1904. Herder als historiker und philosopher, German-American Annals, March, 1904.
- Heath, Harold: Habits of a few Solenogastres, *Zool. Anzeiger*, April 19, 1904. Larval eye of chitons, Phila. Acad. of Nat. Sci. Proc., March, 1904. (with M. H. Spaulding) Anatomy of a pteropod corolla (*Cymbuliopsis*) spectabilis dall., *Zool. Jahrb.*, 1904.
- Hoskins, Leander Miller: Theoretical Mechanics, Stanford University, author, 1903.
- Jenkins, Oliver Peebles: Report on collection of fishes made in the Hawaiian Islands with descriptions of new species, U. S. Fish Com. Bull., 1902. (with A. J. Carlson) Physiological evidence of the fluidity of the conducting substance in

the pedal nerves of the slug *Ariolimax columbianus*, *Jour. of Comp. Neur. and Psych.*, April, 1904. (with A. J. Carlson) Rate of the nervous impulse in the ventral nerve-cord of certain worms, *Jour. of Comp. Neurology*, Dec., 1903.

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Jordan, David Starr: Notes on fishes collected in the Tortugas Archipelago, U. S. Fish Com. Bull., Jan. 19, 1904. Voice of the scholar, *Atlantic Monthly*, July, 1903. (with H. W. Fowler) Review of the cyprinoid fishes of Japan, U. S. Nat. Mus. Proc., July, 1903. (with H. W. Fowler) Review of the siluroid fishes of Japan, U. S. Nat. Mus. Proc., July, 1903. (with J. O. Snyder) On a collection of fishes made by Allan Owston in the deep waters of Japan, Smithsonian Miscel. Coll., April, 1904. (with J. O. Snyder) Notes on collections of fishes from Oahu Island and Laysan Island, Hawaii, U. S. Nat. Mus. Proc., June, 1904. (with J. O. Snyder) On the species of white chimæra from Japan, U. S. Nat. Mus. Proc., Jan., 1904. (with E. C. Starks) Description of a new cyprinoid fish, *Hemibarbus joiteni*, from the Pei-ho, Tientsin, China, Smithsonian Miscel. Coll., April 1904. (with E. C. Starks) Review of the *Cottidæ* or sculpins found in the waters of Japan, U. S. Nat. Mus. Proc. Jan., 1904. (with E. C. Starks) Review of the fishes of Japan belonging to the family of *Hexagrammidæ*, U. S. Nat. Mus. Proc., July, 1903. (with E. C. Starks) Review of the Japanese fishes of the family of *agonidæ*, U. S. National Museum Proceedings, Feb., 1904. (with E. C. Starks) Review of the scorpenoid fishes of Japan, U. S. Nat. Mus. Proc., Jan., 1904. (with E. C. Starks) *Schmidtina*; a genus of Japanese sculpins, U. S. Nat. Mus. Proc., June, 1904; (with G. C. Price) *Animal Structures*, N. Y., Appleton, 1903. (with V. L. Kellogg & H. Heath) *Animal Studies*, N. Y., Appleton, 1903. *California & the Californians*, and *The Alps of King-Kern divide*, S. F., Whitaker & Ray, 1903. *Call of the twentieth century*, Boston, Am. Unitarian Assoc., 1903. *College of the West*, *Pop. Sci. Monthly*, May, 1904. *Comrades in Zeal*, *Pop. Sci. Monthly*, Feb., 1904. *Loach from Nanaimo*, *Science*, April 15, 1904. *Parent-stream theory of the return of salmon*, *Pop. Sci. Monthly*,

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- Miller, George Abrams: April Meeting of the San Francisco section of the American Mathematical Society, *Am. Math. Soc. Bull.*, July, 1903. Constructive development of group theory with a bibliography (review), *Am. Math. Soc. Bull.*, July, 1903. December meeting of the San Francisco section of the American Mathematical Society, *Am. Math. Soc. Bull.*, Feb., 1904. Definition of an infinite number, *Am. Math. Monthly*, July, 1903. Fundamental theorem with respect to transitive substitution groups, *Am. Math. Soc. Bull.*, July, 1903. New proof of the generalized Wilson's theorem, *Ann. of Math.*, July, 1903. Notes on the abelian groups, *Giornale di Matematiche di Battaglini*, Dec., 1903. On the definition of an infinite number, *Monist*, April, 1904. On the generalization and extension of Sylow's theorem, *Am. Math. Monthly*, Feb., 1904. On the groups of the figures of elementary geometry, *Am. Math. Monthly*, Oct., 1903. On the number of conjugate subgroups, *Prace Matematyczno-Fizyczne*, April, 1904. (with H. C. Moreno) Non-abelian groups in which every sub-group is abelian, *Am. Math. Soc. Trans.*, Oct., 1903. On an extension of Sylow's theorem, *Lond. Math. Soc. Proc.*, 1904. Notes on the groups whose orders are powers of an odd prime number, *Messenger of Math.*, Mar., 1904. What is group theory?, *Pop. Sci. Monthly*, Feb., 1904.
- Millis, Henry Alvin: Review of Money and Banking by W. A. Scott, *Am. Acad. of Pol. & Soc. Sci. Ann.*, Sept., 1903. Review of Getting a Living by Bolen, *Am. Acad. of Pol. & Soc. Sci. Ann.*, Sept., 1903. Notes on San Francisco city government, *Am. Acad. of Pol. & Soc. Sci. Ann.*, Sept., 1904.
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- Newcomer, Alphonso Gerald: Poe-Chivers tradition re-examined, *Sewanee Rev.*, Jan., 1904.
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- Putnam, Edward Kirby: Scalacronica version of Havelok, *Am. Phil. Assoc. Trans. & Proc.*, 1903.
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- Snyder, John Otterbein: (with D. S. Jordan) Notes on collections of fishes from Oahu island and Laysan island, Hawaii, with descriptions of four new species, *U. S. Nat. Mus. Proc.*, June, 1904. On a collection of fishes made by Mr. Allan Owston in the deep waters of Japan, *Smithsonian Miscel. Coll.*, April, 1904. On species of white chimæra from Japan, *U. S. National Museum, Proc.*, Jan., 1904.

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THE UNIVERSITY BUILDINGS

The following is a list of the principal University buildings, with the date of the occupation of each:

The Inner Quadrangle (12 buildings).....	1891
The Shops (4 buildings).....	1891
Encina Hall	1891
Roble Hall	1891
Museum	1892
Madrono Hall	1892
Seaside Laboratory	1892
Assembly Hall	1899
Thomas Welton Stanford Library (Law)....	1900
Chemistry Building	1902
Mechanical Engineering Laboratory.....	1902
Memorial Church	1903
Physiology Building	1903

Zoology Building	1903
Physics-Psychology Building	1903
History-English-Economics Building	1903
Engineering Buildings	(1905)
Geology and Mining Buildings	(1906)
Gymnasium	(1906)
University Library	(1906)

Unless some entirely new department of work is undertaken, there will be no need of any further building of importance within the next twenty years. The University is singularly fortunate in having a group of buildings at once adequate, permanent, and of noble and harmonious architectural conception.

CALENDAR OF EVENTS

We may here place on record a list of the important events which have thus far occurred in the history of the University:

- Mar. 13, 1884.....Death of Leland Stanford, Jr.
- Mar. 9, 1885.....Enabling Act approved.
- Nov. 14, 1885.....Founding Grant. First meeting of Trustees.
- May 14, 1887.....Laying of University Cornerstone.
- Mar. 23, 1891.....Appointment of David Starr Jordan, first President of the University.
- Oct. 1, 1891.....University first opened to students.
- June 21, 1893.....Death of Governor Stanford.
- Feb. 11, 1897.....Address of Surviving Founder. Conveyance of California Street mansion and personal property.
- June 1, 1897.....Address of Surviving Founder. Conveyance of stocks and bonds.
- Nov. 2, 1898.....Laying of the Cornerstone of the Thomas Welton Stanford Library Building.
- May 31, 1899.....Address of the Surviving Founder. Conveyance of realty, stock and bonds.
- Jan. 29, 1900.....Laying of the Cornerstone of the Memorial Church.
- Jan. 11, 1900.....Formal Dedication of the Thomas Welton Stanford Library Building.
- Nov. 6, 1900.....Adoption of the Stanford University Constitutional Amendment.

- Feb. 14, 1901.....Act approved exempting University bonds and buildings from taxation.
- Feb. 14, 1901.....Act approved granting corporate powers to Trustees.
- Nov. 1, 1901.....Organization of Trustees under Act of February 14, 1901.
- Dec. 9, 1901.....Three confirmatory conveyances of University Endowment under Constitutional Amendment.
- Oct. 1, 1901.....Exercises in Celebration of the Tenth Anniversary of the Opening of the University.
- Oct. 3, 1902.....Address of the Surviving Founder.
- Dec. 11, 1902.....Laying of the Cornerstone of the New Gymnasium.
- Jan. 25, 1903.....Dedication of Memorial Church.
- Feb. 10, 1903.....Act approved, permitting proceeding to establish and construe University Trusts.
- Mar. 13, 1903.....Act approved, authorizing resignation of Surviving Founder.
- Apr. 25, 1903.....Address of Mrs. Stanford.
- June 1, 1903.....Resignation of Surviving Founder. Assumption of powers by Trustees.
- June 16, 1903.....Petition filed in proceeding to establish and construe University Trusts.
- July 3, 1903.....Decree in proceeding to establish and construe University Trusts.
- July 6, 1903.....Mrs. Stanford elected member and President of Board of Trustees. Delivers Inaugural Address.
- Mar. 15, 1904.....Placing of the keystone in the last arch of the outer quadrangle.
- Mar. 31, 1904.....Organization of the Faculty of the University.

THE LIBRARY

The Library of the University now numbers 81,507 volumes, a number which it is hoped may be rapidly increased, as all forms of research work are dependent upon the adequacy of the Library.

At first located in one of the buildings of the inner quadrangle, the Library has now comfortable quarters in the building of the outer quadrangle erected in 1899 through the generous

interest of Mr. Thomas Welton Stanford. This building is adequate for all present needs, but it is soon to give place to a much larger and finer building already well under way. When this building is completed (in 1906) the present library building may be devoted to the uses of the Department of Law.

THE NEW BUILDING

Of the new Library building we may here quote the following description from the report of the Associate Librarian, Mr. M. G. Dodge: "In style of architecture the new building will combine the Spanish of the buildings of the quadrangles with the Romanesque of the Gymnasium, and in general appearance will be much more ornate than any of the other buildings of the University. The ground dimensions of the main structure are 304 feet in length, with a width through the stack room of 200 feet. The semi-circular addition to the rear, embracing this stack room, has a diameter of 132 feet. In height the building will be three stories and basement, surmounted by a beautiful glass dome 74 feet in diameter, which will afford excellent light to the general reading room below. The total height from the ground-line to the top of the dome will be 141 feet. Two entrances, one on each end of the front of the building, will lead into the first floor. In the wings of this floor will be rooms for the librarians, for accessioning and cataloguing, general reference and periodical rooms; while in the central portion directly beneath the great dome, will be located the general reading and study room, which will be circular in form. Directly back of this, in the semicircular addition, will be the great stack room, the stacks radiating away from the delivery desk. The second floor will be devoted to a large number of seminar rooms and special libraries belonging to the various departments."

GROWTH OF THE LIBRARY

During the year 1903-04, 4,956 volumes were added to the Library. This was considerably less than in the two previous years when the additions were respectively 9,415 and 6,506. Of the 4,956 volumes acquired in 1903-04, 1,826 came in the form of gifts. The Library received during the year by purchase 484 serials, including annuals and dailies.

At the opening of the University in 1891, the Library contained 3,000 volumes. Its growth since that time has been as follows:

SUMMARY OF ACCESSIONS

1891	3,000	1898	3,848
1892	5,030	1899	3,395
1893	7,572	1900	6,957
1894	4,366	1901	8,979
1895	3,640	1902	9,415
1896	9,898	1903	6,506
1897	3,945	1904	4,956
Total	81,507		

LIBRARY REGULATIONS

The Library is open every day of the year except Sundays and holidays. In term time the hours are from 8 A. M. to 10 P. M., except on Saturday when the Library closes at 3:30 P. M. The main use of the Library is for purposes of reference and study within the building itself. Only those books which are not in general use in the reading room are allowed to be taken out. The use of the Library by the students is shown by the fact that during the year a total of 137,902 books were handed over the delivery desk. Of this number 18,704 were for use at night. The number of books taken from the building for use by professors and students at their rooms was 15,323. When books are so withdrawn they are required to be returned within two weeks with the privilege of renewal.

SPECIAL COLLECTIONS

The following special collections in the Library are worthy of mention:

The Timothy Hopkins Railway Library of six thousand volumes, a collection unusually rich in material for the study of the early history of railways in Europe and America.

The Thomas W. Stanford library of Australiana, containing several thousand volumes and pamphlets relating to Australasia.

The Hildebrand Library, consisting mainly of works on Germanic Philology and Literature collected by the late Professor Hildebrand of Leipzig.

The Barbara Jordan library of Ornithology.

The Jordan Library of Zoology, consisting mainly of volumes and pamphlets relating to fishes.

With the completion of the University buildings and their equipment it is expected that liberal provision will be made for

greatly extending the resources of the Library along the lines of advanced study and research. The especial need in this direction is for complete sets of the serial publications of the learned societies.

GIFTS

The University Museum is indebted to Mrs. Stanford for many additions to its collections. Among recent gifts in this connection may be mentioned a collection of Egyptian antiquities and collections from India and Japan. From Japan, to be especially noted, is the famous Ikeda collection of porcelain and lacquer work.

The Museum has also received gifts of Egyptian antiquities from Mr. Timothy Hopkins, who has also contributed various Indian wares and implements, Korean textiles and armor, and curiosities from the South Sea Islands. Mr. Thomas Welton Stanford of Australia has presented a collection of Assyrian tablets, and Mr. H. W. Seton-Karr of London, a collection of prehistoric flint implements. From the Duc de Loubat the Museum has received many valuable reproductions in colors of old Mexican and Aztec manuscripts. Mr. H. J. Moors of Apia has made valuable additions to the South Sea Island collections. Messrs. Salvati & Camerino of Venice, have made donations of Venetian glassware, and Messrs. Mainella & Co. of the same city, have contributed wood carvings. A set of valuable photographic negatives, taken during the process of early building, has been received from Mr. A. J. Treat of San Francisco. Mr. G. M. Herron of Napa County, this State, has added a box of mineral specimens to the collection in mineralogy.

During the year the Library has received a number of gifts. Mr. Thomas W. Stanford has added a full set of the Proceedings of the Linnæan Society of New South Wales to his special collection on Australia. Mr. Timothy Hopkins has supplied a large number of serials and continuations relating to the Hopkins Railway Library. Mr. Chas. G. Lathrop has contributed the funds for the purchase of a complete set of the San Francisco Evening Bulletin from 1856 to 1899 and other works relating to California history, being additions to a collection of Californiana to which he has been contributing for several years. The President of the University has given to the Library his collection of books

relating to fishes, comprising several thousand volumes and pamphlets. Edward Ehrhorn of Mountain View, and Dr. John McMahon of San Jose, have made considerable gifts of books.

Other gifts to the Library have been made by: Mrs. L. K. Mathews, Mr. J. P. Henck of Santa Barbara, Hamilton College, Miss Irene A. Wright, Mrs. D. S. Snedden, and Professors Farland, Branner and Elmore. The following firms have contributed text-books to the collection of such works being made by the Department of Education: The Macmillan Co., Ginn & Co., The American Book Co., Appleton & Co., Educational Publishing Co., Silver, Burdette & Co., Maynard, Merrill Co., Scribner's Sons, Rand McNally Co., D. C. Heath & Co., and Henry Holt & Co. The Library is also indebted to various departments of the Government at Washington for valuable gifts of reports and publications.

THE CARNOT MEDAL

In this connection may be noted also the gift by Baron de Coubertin of Paris of a gold medal known as the "Carnot Medal" which is each year contested for by students of Stanford University and the University of California in an intercollegiate debate.

THE MEMORIAL CHURCH

The normal tendency of college life should be toward the development of high ideals and the sane conduct of life. To strengthen these tendencies Stanford University has added one feature of the highest importance. The Memorial Church was established by the surviving founder in accordance with the express provisions of the founding grant. In their original plan, the founders included a church as necessary to a university of high degree. The broad provisions governing the church were defined in prescribing the duties of the Trustees as follows: "To prohibit sectarian instruction, but to have taught in the University the immortality of the soul, the existence of an all-wise and beneficent Creator, and that obedience to His laws is the highest duty of man."

In this connection Senator Stanford said: "In the deed of trust we have designated the purposes of the University. The object is not alone to give the student technical education, fitting him for a successful business life, but it is also to instill into his mind an appreciation of the blessings of this Government, a reverence for its institutions, and a love for God and humanity, to the

end that he may go forth and by precept and example spread the great truths by the light of which his fellowmen may be elevated and taught how to attain happiness in this world and in the life eternal."

Subsequently, in an address delivered to the Board of Trustees, the ecclesiastical status of the Church was thus defined by the surviving founder: "The University must be forever maintained upon a strictly non-partisan and non-sectarian basis. It must never become an instrument in the hands of any political party or any religious sect or organization. I believe that the moral and religious development of the University will be better accomplished if entirely free from all denominational alliances, however slight the bond may be. The services in the Memorial Church must be simple and informal in character, and the theological questions, services and observances, upon which the sects differ, should not be entered upon, so that members of every church may worship and receive instruction therein not inconsistent with their individual beliefs. Provision has been made whereby all those who love Our Lord Jesus Christ may partake of the Sacrament of the Lord's Supper at stated intervals in the Memorial Church. Attendance at religious services shall be entirely optional, and no profession of religious faith or belief shall be exacted of any one for any purpose."

The Stanford Memorial Church seeking its foundation in the living demands of men and women, stands for no ecclesiastical party or propaganda. Its function is to interpret Christianity in the light of human need. Its work is to teach certain great principles necessary to the moral and spiritual development of youth. It seeks to attain its end by three well-defined lines of influence—services for public worship, congregational in character but informal; instruction through sermons, addresses and lectures; and pastoral work among the students by the resident Chaplain.

The services of the Church are at 11 o'clock on Sunday morning and at 4 o'clock in the afternoon. An informal vesper service is held on Thursday afternoon at the close of recitations, and the church organ is played each afternoon between the hours of 4 and 5.

Happily, there exists between the Church and the University the most cordial sympathy. The attitude of the students is shown by a recent editorial in the *Daily Palo Alto*:

"For the benefit of the strangers within our gates we may say that Memorial Church was built by Mrs. Stanford in memory of her husband. It is entirely non-sectarian in character and method. The services are simple and congregational, and all seats are free. There is no membership, students of varied ecclesiastical affiliations finding a common ground in the services. Although dedicated but eighteen months ago, the Church has taken a firm place in the affections of the students, standing as it does for definite spiritual principles without compulsion in the matter of attendance or creed."

The denominational independence of the Memorial Church, its broad foundation, its noble endowment, make it forever free to represent a large ideal of spiritual liberty, to stand for clear thinking and right action, without placing itself in antagonism with the creed or practice of any of the religious organizations already existing in the country.

The following description of the Memorial Church building may be made a matter of record:

"The building is of modified Moorish-Romanesque architecture and in the form of a cross with rounded ends. The extreme length, through vestibule, nave, and apse, is one hundred and ninety feet; the extreme width through transept wings, one hundred and fifty-five feet. The four gables of nave, transept wings, and apse are united by a twelve-sided belfry tower, whose spire, surmounted by a cross, rises to a height of one hundred and eighty-eight feet. Exteriorly the tower is flanked upon the four corners by turrets rising from the angle between the gables. It is engirdled at the base by an outside gallery, and is strengthened by an effective use of the flying-buttress. The tower contains the clock with its four faces, a chime of four bells, tuned to correspond with the Westminster chimes, and twenty-four pictorial windows. The church is built of buff sandstone, rough-hewn, with tooled face on the inside, relieved by elaborate carved designs and fifteenth-century mosaics of great beauty. The features of the apse are the marble altar with its candelabra, life-size marble figures, and bas-relief of Gulio Ciseri's painting of "The Entombment," the three great stained-glass windows, the marble statues of the twelve apostles, and the mosaics covering the entire wall surface. Behind the altar is a replica of Cosimo Rosselli's "Last Supper," from the Sistine Chapel at Rome. To the right and left,

running to the arch of the apse, are long panels, a *gloria dei angeli*, surmounted by reproductions, in mosaic, of Michael Angelo's prophets. The cove ceiling, springing from the crown of the great arches, is also done in mosaic representing angels with trumpets. This cove-ceiling narrows to a thirty-two-foot open circle, and through this is seen the frescoed ceiling of the true dome, one hundred and six feet above the floor. The nineteen large stained-glass windows of nave, transept, and apse, in a series of beautiful designs, illustrate the life of Christ. The windows of the clerestory contain single figures of Old and New Testament characters. Above the organ gallery is the beautiful rosette window with Hoffman's Christ child as a center picture. Flanking the rose window is the great organ, separated into two parts, with the console near the center of the gallery rail. The organ has forty-six stops and nearly three thousand pipes, and the several parts are connected and operated by electricity. The seating capacity of the Church, including galleries, is about seven-hundred."

ATHLETICS

The articles of organization of the University provide that the faculty committee on Athletics shall have the supervision of athletic sports within the University and in intercollegiate events. With reference to the condition of athletics in the University and the attitude of the University toward them, I cannot do better than quote here at length from the report of the Athletic Committee. Dr. Frank Angell, chairman of the Committee, says: "Of rules and regulations for the government of Athletics I find but two, and they became obsolete several years ago. The outcome of the Committee's deliberations have usually taken the form of an understanding with representatives of the student body, either as regards some matter of internal policy, or more especially as touching questions in the Intercollegiate Agreement between this University and the University of California.

"That is to say, most of the rules and regulations which the Committee has considered fitting and useful for controlling the abuses attendant upon the rapid development and intense competition of intercollegiate sports have become incorporated in the Intercollegiate Agreement by the direct action of the student bodies of the two Universities, acting in part from the initiative

of their own common sense, and in part from suggestions made by the faculty committee.

"Accordingly, you will find that the Agreement contains no less than eight provisions which disqualify students from taking part in intercollegiate athletics. Thus a student may be disqualified who has not attained a certain standard of entrance or university requirements, or who is doing less than a certain amount of university work, or who has taken part for four years in intercollegiate contests, either here or elsewhere. But whatever their special application, all of these rules are directed toward checking the tendency, inherent in intercollegiate sport of to-day, of making a business of athletics, *i. e.*, toward checking actual or virtual professionalism. And I think it may be fairly claimed that the rules have achieved their end with some considerable degree of success. The charge of inducing promising athletes to attend a university under an agreement of financial support, which is so frequently bandied about among American colleges, is, so far as I know, without foundation at Stanford. The receipts of the student body are not sufficiently large to admit of maintaining an athlete here without the knowledge of the faculty and student athletic committees. The 'inducements' which students have held out to promising athletes, so far as I know, have usually taken the form of a chance to do manual labor in or about the University, and if any athletes have been induced to come here through opportunities of waiting on table, carrying newspapers, or acting as agents for laundries, I do not consider the situation as a menacing one for the purity of athletics.

"But the work of the Athletic Committee in maintaining a proper standard of academic sport in the University is greatly helped by two other agencies in the University: firstly, by a growing feeling of pride in the student body in the stand which the University has taken in the matter of amateur standards in athletics; and secondly, through the work of the Scholarship Committee, which in and of itself would make the career of the parasitic athlete at this University of brief and fleeting duration.

"The articles of organization of the faculty of the University state that 'the Committee on Athletics has to do with the supervision of athletic sports within the University and in intercollegiate events.' It is, of course, not to be inferred from this that the committee is to have supervision over such sports as the

gymnasium applies in carrying out its ends any more than it is to interfere with the supervision which the gymnasium exercises over the athletes whom it allows to substitute athletic sport for gymnastic work. The action of the Committee, therefore, within the University would consist in encouraging those sports and methods of conducting sport which it considers proper and beneficial, and in discouraging those which it regards as improper and injurious; and it is in these fields that the Committee finds its greatest opportunities as well as its hardest problems.

“In these fields again, whatever of value is accomplished must be brought about through the voluntary action of the students themselves. While the student recognizes the logical right of the faculty to place restrictions upon athletics in so far as athletics affect scholarship, he does not recognize this right in the conduct of the sports themselves, and such measures as the committee considers beneficial should be brought about, and in actual instances have been brought about, as a result of deliberation and discussion with representatives of the upper classmen.

“Now the chief evils in our present system of sports are that the sports we have are too few in number and these few are too intensively pursued. The obvious corrective for these evils is to increase the number of sports and to have more students take part in the sports already established. As regards the former measure, it is to be observed that any new branch of athletics has to overcome a very considerable inertia of tradition before it becomes recognized as a college sport, and this condition obtains without regard to the fitness of a game for any given locality or climate. Thus football, as it is now played in the universities, is ill adapted to California conditions. While in the East it is played on any field of turf, and at a time when the weather is cold and stimulating, in California it must be played on fields especially prepared, and actually is played at a time of year when the heat is often the greatest and most exhausting. On the other hand, lacrosse,—a fine game, demanding great skill, endurance, and team play, seems ideally fitted for the climatic conditions of California. Nevertheless, football is essentially the college game on this coast, and every attempt to introduce lacrosse has failed.

“The second evil is of a more serious nature. Too few students take part in athletic sports, and these few enter into them with too much intensity. Some time ago I estimated from data

derived from the lists of candidates for the intercollegiate teams that less than 25 per cent. of the students of this University take part in athletic sports, and when one further considers that by far the greater proportion of this small number are active during but one season of the year, it is evident that our athletics have arrived at a stage of over-specialization. This condition is not peculiar to Stanford University: it holds with but a few and notable exceptions throughout the United States, and is due in part to limited opportunities for athletic sports and in part to the intense rivalry of intercollegiate contests.

“This matter of extensive facilities for athletic sports I consider of great importance, not alone for the purpose of increasing the number of those who take part in sports and games, but also for the purpose of counteracting some of the positively injurious effects of excessive development of intercollegiate athletics. The only way in which a majority of the students take part in athletics is in concerted cheering and yelling both in practice and match games, and while the motive of the cheering and yelling is the generous one of helping and encouraging the teams, I am strongly of the opinion that not a little of the hysterical elation or depression which we witness at the outcome of the ‘big games’ is in no small measure due to the training received on the bleachers, and it would seem as if the best corrective for this would be athletic activity on the part of all the students throughout the year. I am aware that the conditions at the English universities differ so widely from those prevalent in this country that we may hardly apply their experience to ours. Nevertheless, it may be stated as a matter of fact that practically every man at Oxford and Cambridge does something in outdoor exercise and does it throughout the year; that inter’varsity events excite no more interest among the undergraduates than some of the intercollegiate ‘fixtures’; and that in the English university sports there is less of business and more pleasure, more healthfulness, more sanity, and more soundness than in our own. But whether we can apply English experience to our conditions or not, I feel that the most feasible way of checking the excessive rivalry of intercollegiate events lies in the broader participation in sports of the student body at large, whereby these events may come to be ‘fixtures’ in a series of athletic games, instead of as at present constituting practically the only source of athletic activity.”

THE SEASIDE LABORATORY

The Seaside Laboratory of the Leland Stanford Junior University was founded at Pacific Grove on Monterey Bay in 1892, through the generous interest of Mr. Timothy Hopkins of Menlo Park, a member of the Board of Trustees of the University. The Laboratory consists of two wooden buildings with aquaria, flowing water, and the equipment necessary to study marine life.

The Laboratory has served two purposes: first, the instruction of elementary students in biology; second, the promotion of advanced research. Its location is admirably adapted for marine biological investigation, as the Bay of Monterey is the meeting point of the faunas of the North and South, especially rich in chimæras, hag-fishes, star-fishes, sea-urchins, chitons, Salpa—and other forms of interest to investigators and growing to a size unknown in similar stations. In this Laboratory, investigations have been carried on by various professors and advanced students of the University, as also by scientific men from other institutions who have worked as guests of the Laboratory. Among these guests have been Dr. Jacques Loeb of the University of California, Dr. Bashford Dean and Dr. Thomas Hunt Morgan of Columbia University, Dr. Franz Döflein of Munich, Dr. Howard Ayres, late President of the University of Cincinnati; Dr. De Alton Saunders of the University of Nebraska, and numerous others.

A series of scientific memoirs have been published in connection with the Seaside Laboratory, most of them in co-operation with the California Academy of Sciences. The following is a list of these papers:

SCIENTIFIC PUBLICATIONS

1. "The Fishes of Sinaloa." By David Starr Jordan. pp. 142. 29 *plates*.
2. "On the Cranial Characters of the Genus Sebastodes." By Frank Cramer. pp. 42. 14 *plates*.
3. "The Fishes of Puget Sound." By David S. Jordan and Edwin C. Starks. pp. 71. 29 *plates*.
4. "New Mallophaga, I," with special reference to a Collection made from Maritime Birds of the Bay of Monterey, California. By Vernon L. Kellogg. pp. 144. 15 *plates*.
5. "Notes on Fishes, Little Known or New to Science." By David Starr Jordan. pp. 48. 24 *plates*.

6. "Notes on Fresh Water Fishes of the Pacific Slope of North America." By Cloudsley Rutter. "Description of a New Species of Pipe-Fish (*Siphostoma sinaloæ*) from Mazatlan." By David S. Jordan and Edwin C. Starks. "Notes on *Deltistes*, a New Genus of Catostomoid Fishes." By Alvin Seale. pp. 29.
7. "New Mallophaga, II," from Land Birds, together with an account of the Mallophagous Mouth-Parts. By Vernon L. Kellogg. pp. 118. 14 *plates*.
8. "List of Fishes Collected at Port Ludlow, Wash." By Edwin Chapin Starks. pp. 14. 2 *plates*.
9. "Marine Fossils from the Coal Measures of Arkansas." By James Perrin Smith. pp. 72. 9 *plates*.
10. "Scientific Names of Latin and Greek Derivation." By Walter Miller. pp. 31.
11. "A Morphological Study of *Naias* and *Zannichellia*." By Douglas Houghton Campbell. pp. 68. 5 *plates*.
12. "Geology of the Paleozoic Area of Arkansas South of the Novaculite Region." By George H. Ashley. pp. 141. 31 *cuts*. 2 *maps*.
13. "The Development of *Glyphioceras* and the Phylogeny of the *Glyphioceratidæ*." By James Perrin Smith. pp. 28. 3 *plates*.
14. "A Geological Reconnaissance of the Coal Fields of the Indian Territory." By Noah Fields Drake. pp. 93.
15. "Description of a Species of Fish (*Mitsukurina owstoni*) from Japan, the Type of a Distinct Family of Lamnoid Sharks." By David Starr Jordan. pp. 5. 2 *plates*.
16. "The Development of *Lytoceras* and *Phylloceras*." By James Perrin Smith. pp. 32. 5 *plates*.
17. "Phycological Memoirs." By De Alton Saunders. pp. 22. 21 *plates*.
18. "The Phosphorescent Organs in the Toadfish *Porichthys notatus* Girard." By Charles Wilson Greene. pp. 24. 3 *plates*.
19. "New Mallophaga, III. Mallophaga from Birds of Panama, Baja California and Alaska." By Vernon L. Kellogg. "Mallophaga from Birds of California." By Vernon L. Kellogg and Bertha L. Chapman. "The Anatomy of the Mallophaga." By Robert E. Snodgrass. pp. 229. 7 *plates*.

20. "The Nature of the Association of Alga and Fungus in Lichens." By George James Peirce. pp. 36. 1 *plate*.
21. "Studies on the Flower and Embryo of *Sparganium*." By Douglas Houghton Campbell. pp. 38. 3 *plates*.
22. "The Development and Phylogeny of *Placenticeras*." By James Perrin Smith. pp. 60. 5 *plates*.
23. "Studies on the Coast Redwood, *Sequoia sempervirens* Endl." By George James Peirce. pp. 24. 1 *plate*.
24. "Description of Two Genera of Fishes (*Ereunias* and *Draciscus*) from Japan." By David Starr Jordan and John Otterbein Snyder. "Description of Three New Species of Fishes from Japan." By David Starr Jordan and Edwin Chapin Starks. pp. 10. 4 *plates*.
25. "Notes on Coccidæ (Scale Insects) : Notes on *Cerococcus*." By Rose W. Patterson. "New and Little Known California Coccidæ." By S. I. Kuwana. "The Redwood Mealy Bug (*Dactylopius sequoia* *sp. nov.*)." By George A. Coleman. "The San Jose Scale in Japan." By S. I. Kuwana. pp. 50. 6 *plates*.
26. "Studies on Ciliate Infusoria." By N. M. Stevens. pp. 44. 6 *plates*.
27. "Coccidæ (scale insects) of Japan." By S. I. Kuwana. pp. 56. 7 *plates*.
28. "Anatomy of *Epidella squamula*." By Harold Heath. pp. 30. 2 *plates*.
29. "The Root-tubercles of Bur Clover." By Geo. J. Peirce. pp. 34. 1 *plate*.
30. "The Net-winged Midges (*Blepharoceridæ*) of North America." By Vernon L. Kellogg. pp. 1 *plate*.
31. "The Paleontology & Stratigraphy of the Marine Pliocene and Pleistocene of San Pedro, California." 420 pp. By Ralph Arnold.
32. "Fishes of Panama Bay. 304 pp. By Charles Henry Gilbert and Edwin Chapin Starks.

INVESTIGATIONS AND SURVEYS

In 1904, the United States Bureau of Fisheries devoted the use of the steamer "Albatross" to the biological and hydrographic survey of the Bay of Monterey. The work of a biological character, under the general direction of the President of the University, was undertaken by the staff of the Seaside Laboratory,

Dr. Charles H. Gilbert, Dr. Harold Heath, and Mr. Milo H. Spaulding being sent from the University for this work.

The value of the Seaside Laboratory to the biological departments of Stanford University cannot be overestimated. It has enabled the biological students of the University to secure a first-hand acquaintance with the life of the sea, and it has furnished opportunity and material for scientific research of the highest importance. That the Pacific Ocean is so near and so convenient for study, is one of the important elements in the fortunate selection of the location of Stanford University.

Besides the survey of Monterey Bay just mentioned, the United States Bureau of Fisheries has recently enlisted the services of members of the biological staff of the University in three other surveys of importance—(1) in 1903, the survey of the salmon fisheries of Alaska, under the direction of President Jordan and Dr. B. W. Evermann, of the Bureau of Fisheries, Dr. Charles H. Gilbert, Dr. Harold Heath, Mr. M. H. Spaulding, and Mr. Harold B. Jordan of the University acting as assistants; (2) in 1904, the survey of the lakes of southeastern Oregon, under the direction of Prof. John O. Snyder, Edwin C. Starks and Earl Morris of the University acting as assistants; and (3) in 1904, the investigation of the Golden Trout of Mount Whitney under the direction of Dr. Evermann of the Bureau, Dr. O. P. Jenkins, Prof. R. L. Green, and Mr. Hubert Jenkins of the University acting as assistants. By these and similar expeditions a vast amount of material for investigation has been collected, a part of which becomes the property of the University.

Respectfully submitted.

DAVID STARR JORDAN,
President of the University.

December, 1904.



LELAND STANFORD JUNIOR UNIVERSITY PUBLICATIONS

1906

TRUSTEES' SERIES

NO. 13



REPORT OF THE PRESIDENT

OF THE

UNIVERSITY

FOR THE YEAR ENDING JULY 31, 1905

STANFORD UNIVERSITY, CALIFORNIA

PUBLISHED BY THE UNIVERSITY

1906

Leland Stanford Junior University Publications

Trustees' Series

No. 1.	The Leland Stanford Junior University. A pamphlet of information.....	(No Date)	
2.	Address of Jane Lathrop Stanford to the Board of Trustees	February	11, 1897
3.	Address of Jane Lathrop Stanford to the Board of Trustees.....	June	1, 1897
4.	Address of Jane Lathrop Stanford to the Board of Trustees	May	31, 1899
5.	Address of Jane Lathrop Stanford to the Board of Trustees	October	3, 1902
6.	Address on "The Right of Speech" by Jane Lathrop Stanford, to the Board of Trustees	April	25, 1903
7.	Petition filed in proceeding to establish and construe University Trusts....	June	16, 1903
8.	Decree in proceeding to establish and construe University Trusts.....	July	3, 1903
9.	Inaugural Address of Jane Lathrop Stanford as President of the Board of Trustees	July	6, 1903
10.	Organization of the Faculty of the Uni- versity	March	31, 1904
11.	Report of the Organization Committee of the Trustees upon the Organiza- tion of the University Faculty....	March	31, 1904
12.	First Annual Report of the President.	December,	1904
13.	Second Annual Report of the President.	April,	1905

LELAND STANFORD JUNIOR UNIVERSITY PUBLICATIONS

1906

TRUSTEES' SERIES

NO. 13

SECOND ANNUAL
REPORT OF THE PRESIDENT
OF THE UNIVERSITY
1904-05

STANFORD UNIVERSITY, CALIFORNIA

PUBLISHED BY THE UNIVERSITY

1906

TABLE OF CONTENTS

	PAGE
Death of Mrs. Stanford	5
University Policy	6
Advance of Salaries	7
Attendance of Students	7
Commencement and Degrees	7
Limitation of Women Students	7
Faculty Changes	8
Faculty Legislation	12
Work of Advisory Board	13
Special Lectures	14
Progress in Building	15
Athletic Grounds	15
Football Bleachers	15
Future of Football	16
Carnegie Pension Fund	17
Scientific Research	17
Faculty Publications	18
Seaside Laboratory	24
Calendar of Events	24
Prizes	25
Gifts	25
Appointments and Removals	26
Departmental Reports:	
Greek	28
Latin	29
German	30
Romanic Languages	32
English	35
Psychology and Philosophy	37
Education	38
History	39
Economics	41
Law	42
Mathematics	42
Applied Mathematics	43
Physics	45
Chemistry	46
Botany	49
Systematic Botany and Forest Botany	50
Entomology and Bionomics	51
Hygiene	52

Departmental Reports (<i>Continued</i>):	PAGE
Physiology and Histology	53
Zoology	54
Geology and Mining	56
Drawing	58
Civil Engineering	58
Mechanical and Electrical Engineering	59
Electrical Engineering	62
Reports of Standing Committees:	
Athletics	64
Literary Contests	66
Public Health	67
Report of Registrar	74
Report of Librarian	81
Report of University Chaplain	84
Report of Curator of Museum	86

REPORT OF THE PRESIDENT

*To the Honorable Board of Trustees,
The Leland Stanford Junior University.*

DEAR SIRs :

Permit me to present the following as the Annual Report of the President of the University for the year 1904-1905 :

The overshadowing event of the year is the death of the surviving founder of the University, Jane Lathrop Stanford, which took place at the Moana Hotel in Honolulu on the night of February 28, 1905.

In spite of the unfortunate circumstances connected with her sudden death, it is a satisfaction to all members of the University and to its friends that she was spared so long ; that **Death of** she lived to see the University safely past all the **Mrs. Stanford** dangers which beset its early years ; that she was able to see the practical completion of its noble scheme of buildings, and to feel the spread of its influence among the youth of California and of the whole United States. This is not the place for a formal eulogy, nor does her memory need such in a paper addressed to your Honorable Board. Each of you has been a witness for fourteen years of her wise foresight, her broad sympathy, her executive force, her willing sacrifice, her unflinching devotion to the interests of the University and to the memory of her honored husband and her beloved son. I may, however, repeat here the following words spoken by me at the time of her death :

"The sudden death of Mrs. Stanford has come as a great shock to all of us. She has been so brave and strong that we hoped for her return well rested, and that her last look on earth might be on her beloved Palo Alto. But it was a joy to her to have been spared so long ; to have lived to see the work of her husband's life and hers firmly and fully established.

"Hers has been a life of the most perfect devotion to her own and her

husband's ideals. If in the years we knew her she ever had a selfish feeling no one ever detected it. All her thoughts were of the University and of the way to make it effective for wisdom and righteousness.

"No one outside of the University can understand the difficulties in her way in the final establishment of the University, and her patient deeds of self-sacrifice can be known only to those who saw them from day to day. Some day the world may understand a part of this. It will then know her for the wisest as well as the most generous friend of learning in our time. It will know her as the most loyal and most devoted of wives. What she did was always the best she could do. Wise, devoted, steadfast, prudent and just — every good word we can use was hers by right. The men and women of the University feel the loss, not alone of the most generous of helpers, but of the nearest of friends."

The general policy of the University as originally planned by the founder, and as later from time to time outlined by Mrs. Stanford, is wise beyond question and will be followed without break. This involves the development of advanced specialized and technical work, fitting young men and young women for the highest success in life. It involves the undertaking of no line of work which cannot be done thoroughly and with an eye single to the best interests of the student, and a limitation of the number of students so far as may be necessary towards this end. It involves moreover the development of a great library and museum, of shops and laboratories of the highest grade, and all this without forgetting or neglecting those agencies which make for intellectual broadening and for the moral and spiritual elevation of the student. At the same time the University is to be kept wholly free from any control on the part of outside organizations, whether political or religious.

Other features of this policy are the securing of the best investigators and teachers as members of the faculty, the payment of generous salaries, the keeping of the expenses of the student at the lowest practicable point, the keeping in touch with the public school system of California and of the other states, the fostering of a democratic spirit among the students, and the offering of the advantages of a university education to those only who can use and appreciate those advantages.

With all this, the general policy in question involves the necessity of the University to live always within its means, to husband its resources, to bring each year's expenditures within its income, and never to anticipate revenues or otherwise to run into debt.

Along these lines the University was planned by its founders, and from the beginning, notwithstanding years of litigation and other difficulties, the general policy as thus defined has been consistently carried out.

Of the different occurrences of the year the most important is the act of the Board of Trustees by which the salaries of the full professors in general were increased to \$4,000, a few receiving a larger sum, while the salaries of a few others are left temporarily at a lower figure. A similar advance can now be made to advantage in the salaries of the Associate and Assistant Professors, at least an increase correlated to the rapidly increasing cost of living in the United States.

The attendance of students for the year 1904-05 reached a total of 1568, an increase of 73 students over the attendance of the preceding year. The enrollment for the year 1905-06 shows a still greater increase, having already reached 1780, of which number 618 have been new students. Details regarding the attendance of students will be found in the report of the Registrar.

At the Commencement exercises, held on May 24, 1905 degrees were granted to 253 students, an increase of 32 over the graduating class of 1903-04. These degrees were distributed as follows: Bachelors of Arts, 220; Bachelors of Laws, 8; Masters of Arts, 23; Engineer, 1; Doctor of Philosophy, 1. The principal address was given by Professor Charles David Marx, head of the Department of Civil Engineering. The Baccalaureate Sermon to the graduating class was given by President S. B. L. Penrose, D. D., of Whitman College, Walla Walla, Washington.

The presence among the students of the year of fully 500 women who were able to meet the advanced requirements for admission to the University necessitated the consideration of further restrictions upon the conditions under which women may be received. This subject has received the serious attention of the Academic Council. The result of this has been the formulation of the following arrangement, which has been adopted as the method of procedure to be followed beginning with the year 1906-07:

The Founding Grant of the University, as amended May 31, 1899, directs "that the number of women attending the University as students shall at

no time ever exceed five hundred." In conforming to this provision the following plan of admission has been adopted :

Graduates of this University and of universities of equivalent standing will be admitted without previous application. Women once admitted to the University will be allowed without further application to continue until graduation, or so long as scholarship and conduct are satisfactory. But places will not be held for women students after the regular registration days, except by permission of the Committee on Registration, granted in advance.

For the remaining number of women students permitted by the Founding Grant (for August, 1906, approximately 150) the plan of admission is as follows :

Applications may be made at any time. They must state the proposed time of entrance and the credentials which the candidate expects to offer. To insure consideration, applications must be formally renewed within ten months of the proposed date of entrance. Blanks for application may be obtained of the Registrar.

A numbered list will be begun on the first day of July. Only those candidates will be listed whose credentials are complete (that is, who on examination, or recommendation, or both, have been granted fifteen entrance units). If more than the designated number present complete credentials on this date the order will be determined by following, as far as practicable, the original order of application. After July 1st candidates will be listed in the order of application (accompanied by complete credentials). When two or more are received at the same time, the serial order will be determined in the same manner as before.

On registration day candidates will be preferred in their serial order. After registration day the serial order of candidates actually present will be observed.

Vacancies in January may be filled from a numbered list to be begun on the first day of October preceding. Candidates on the August list, not matriculating at that time, may be entered on the January list in their serial order, provided written request to that effect shall be made to the Registrar on or before October 1st. Additional applications will be considered in the manner used in making up the August list.

The following changes in the teaching staff of the University affecting the year 1904-05, and also the present year, may be noted :

In Electrical Engineering, the chair left vacant since the resignation, in 1900, of Dr. Frederick A. C. Perrine, has been filled by the appointment of Prof. Harris Joseph Ryan, who took up his work in September, 1905. Professor Ryan is a graduate of Cornell University, M. E., 1887. He had served through the various grades of instructor, assistant and associate professor in Cornell University, and was at the time of coming to us Professor of Electrical Engi-

neering in that institution. Mr. Samuel Barclay Charters, a graduate, M. E., of Cornell University, was added as instructor in the department.

In Philosophy, the chair established the first year of the University, but never filled by a full professor, is occupied temporarily for the year 1905-06 by Dr. William James of Harvard University, who is with us on leave of absence from that institution. The filling of this chair by the appointment of a permanent head is one of the things which should receive early attention as soon as the pressure of building relaxes.

In Economics, the chair in Economics, vacant since the resignation, in 1900, of Dr. Frank A. Fetter, and the chair of Political Science, vacant since 1901, are also matters of pressing importance, made the more urgent by reason of the resignation in December, 1905, of Associate Professor Simon J. McLean to accept a chair in the University of Toronto. Dr. Albert C. Whitaker, recently promoted to an assistant professorship in the department, has been made acting executive head in the place of Professor McLean. Dr. Whitaker is a graduate of Stanford University and of Columbia University, where he received the Doctor's degree.

In German, the headship of the department has been left vacant for the year, Professor James O. Griffin, and in his illness Assistant Professor Karl G. Rendtorff, acting as executive head. At the beginning of the present year Dr. Macy Millmore Skinner was added to the staff of the department as Assistant Professor, and Dr. Charles Phillips and Dr. Jean du Buy, graduate assistants, have assisted in the work during the illness of Professor Griffin. Dr. Skinner is a graduate of Harvard University, A. B. and Ph. D., and before coming to us was instructor in German in Harvard University. Dr. Phillips is a graduate of the University of Tübingen, and Dr. de Buy holds degrees from the University of Heidelberg and from Yale University.

In Latin, Dr. Benjamin O. Foster has been promoted to an assistant professorship. Dr. Foster is a graduate of Stanford and of Harvard, having taken his A. M. and Ph. D. in the latter institution.

In Romanic Languages, Assistant Professor Carl C. Rice was forced to resign on account of ill health before the close of the year. His place has been filled by the return of Mr. Clifford G. Allen, who has been studying abroad for the past two years. He

will return to Paris during the coming vacation to complete the work for his Doctor's degree. Mr. Allen is a graduate of Boston University.

In English, Messrs. Howard Judson Hall and Lee Emerson Bassett have been promoted to assistant professorships. Professor Hall is a graduate of Stanford University and also of Harvard University, where he received his Master's degree. Before coming to us he was Professor of English in the University of Arizona. Professor Bassett is a graduate of Stanford University. Associate Professor Alphonso G. Newcomer will be absent on sabbatical leave during the second semester of the current year. Professor Ewald Flügel was absent during the year, working on his Chaucer Dictionary under the grant from the Carnegie Institution. He will be absent also during the present year. Mr. Edward K. Putnam, absent for the year assisting Dr. Flügel, has resumed his instructorship in English in the University. Mr. J. K. Bonnell, instructor in English, is absent during the current year for the purposes of rest and study. His place is filled by Dr. Henry David Gray, a graduate of Colgate University and of Columbia, having taken his Doctor's degree in the latter institution. Dr. Gray comes to us from the University of Texas.

In History, Professor Max Farrand is absent during the year on sabbatical leave. Associate Professor Adams has been made acting head of the department, and Mr. Payson J. Treat has been added as instructor. Mr. Treat is a graduate of Wesleyan University, A. B., and Columbia University, A. M. Dr. Henry L. Cannon has been promoted to an assistant professorship. Dr. Cannon is a graduate of Western Reserve University, and received his Doctor's degree at the University of Pennsylvania. He came to us in 1903 from the University of Cincinnati.

In Law, Assistant Professor William C. Dennis resigned at the close of the year to take a position in Columbia University. Dr. Charles Henry Huberich has been elected to fill the vacancy. Dr. Huberich is a graduate of the University of Texas and holds degrees also from Yale University and from Heidelberg University. He comes to us from an adjunct professorship in the University of Texas. To fill the vacancy left by the resignation of Assistant Professor Charles Ross Lewers, Mr. Roy V. Reppy and Mr. Henry W. Ballantine were chosen instructors. These men afterward resigning to engage in active practice, were succeeded by Mr. Leon P. Lewis and Mr. Wesley N. Hohfeld, the former a

graduate of Chicago University Law School, the latter of the University of California and the Law School of Harvard University.

In Education, Associate Professor Ellwood P. Cubberley was absent during the year 1904-05 on sabbatical leave. During the present year Assistant Professor David S. Snedden is absent on leave for purposes of study. Mr. Anthony H. Suzzallo, absent for two years, returned at the beginning of the present year. He has recently been promoted to the title of Assistant Professor in Education.

In Mathematics, Professor Robert E. Allardice was absent during the year on sabbatical leave. Dr. Hans F. Blichfeldt is similarly absent for the current year from the same department.

In Applied Mathematics, Mr. William A. Manning has returned from a year's absence for study abroad.

In Physics, Assistant Professor Samuel J. Barnett resigned at the close of the year to accept a position in Tulane University. Dr. Edwin R. Drew was chosen to fill the vacancy. Dr. Drew is a graduate of the University of California and of Cornell University, receiving his Doctor's degree from the latter institution. Associate Professor Herman D. Stearns is still seriously ill. He was absent during the year on sabbatical leave, and not being able to resume his work for the current year, it has been cared for by the other members of the department with the assistance of graduate students, notably Mr. George Albert Clark, a graduate of the University of Michigan, who comes to us on leave from the faculty of Yankton College.

In Chemistry, the staff has been increased by the appointment of Mr. James P. Mitchell as acting instructor.

In Botany, Associate Professor George J. Peirce was absent on sabbatical leave during the first semester of the year 1904-05. During the present year Professor Douglas H. Campbell is absent on sabbatical leave and Dr. Peirce is acting head of the department. Dr. Pehr H. Olsson-Seffer having resigned, Mr. Harry B. Humphrey, a graduate of the University of Minnesota, and for the past two years a graduate student in the department, has been appointed acting instructor in Systematic Botany.

In Physiology, Mr. J. F. Cowan, a graduate of Stanford University, has been made acting instructor.

In Zoology, Dr. Harold Heath will be absent on sabbatical leave during the second semester of the present year. Mr. Walter

K. Fisher has been made acting instructor in the department during Dr. Heath's absence.

In Entomology and Bionomics, Professor Vernon L. Kellogg was absent during the year on sabbatical leave. At the beginning of the current year Miss Isabel McCracken, formerly assistant in the department, was made acting instructor in the place of Mrs. Ruby G. Bell, resigned.

In Geology and Mining, Dr. John C. Branner was absent on sabbatical leave during the first semester of the year 1904-05. For the current year Associate Professor John F. Newsom will be absent on sabbatical leave. His work is temporarily taken by Mr. Galen H. Clevenger, a graduate of the South Dakota School of Mines and of Columbia University. Mr. Dorsey A. Lyon has been promoted to an assistant professorship. Mr. Lyon is a graduate of Stanford University and of Harvard University. Dr. Austin Flint Rogers has been added to the staff of the department as Assistant Professor of Mineralogy. Dr. Rogers is a graduate of the University of Kansas and of Columbia University, receiving his Doctor's degree from the latter institution.

In Civil Engineering, Associate Professor John C. L. Fish is absent on sabbatical leave, his place being filled temporarily by the appointment of Mr. Hubert H. Hall as instructor. Mr. Hall is a graduate of the University, class of 1904.

In Mechanical Engineering, Assistant Professor Andrew A. Browne is still ill and unable to carry on his University duties. In his absence, Mr. Theron Palmateer is acting as foreman of the Machine Shop. Mr. Edward J. Stanley, instructor in pattern-making, is absent for the year on leave, his place being filled temporarily by Mr. J. J. Stack. Mr. Samuel J. Dennis has been added to the staff of the department as instructor. To the department has also been added a mechanician shop for the making and repair of apparatus for the various departmental laboratories. Mr. Frank A. Stevens, formerly connected with Cornell University in the same capacity, has been made foreman of this shop.

Under the Articles of Organization it was made the duty of the Executive Committee of the Academic Council to "formulate the duties and control the policy of the several committees." In carrying out this duty a sub-committee of the Executive Committee obtained from the chairmen of the various standing committees previously in existence an outline of the duties and policies of each committee as

Faculty
Legislation

administered prior to the plan of organization. The replies of the chairmen were collated and laid before the Executive Committee. As a result the whole policy of the University, as expressed through the workings of the various committees, was brought under review. The greater part of the year 1904-05 was given up to a consideration of this matter, and on April 24, 1905, the deliberations of the Executive Committee were formulated and brought before the Academic Council. The report was considered by the Council on May 11th, and with certain modifications and amendments the recommendations of the Executive Committee were adopted. The details of this Faculty legislation will be published in a separate report.

In the course of the year a variety of administrative problems have been laid before the Advisory Board of the Faculty and have

Work of Advisory Board	received careful consideration by this body. One of the most important of these is the question as to the desirable limit of departmental organization.
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The practical question is whether the smaller departments, representing special or advanced lines of work, should for purposes of administration be consolidated with the larger ones. The practice of the University in the past has been to regard the individual professorship as a natural unit of organization. The following resolution of the Advisory Board, passed at its meeting on August 31, 1904, may be considered as representing the present judgment of the President and Faculty in this matter :

"It is recommended that the unit of organization be the department, which shall consist typically of a group of closely allied professorships, and shall exist for the purpose of securing the proper correlation of undergraduate work and for the administration of business; but that for the purpose of graduate research work the professorship be the unit."

Upon the matter of additional professorships submitted for the consideration of the Advisory Board, its advice was in substance as follows :

"We feel very strongly that the obligation to place existing departments upon a satisfactory basis of efficiency is greater than the need of forming any new departments of instruction, which shall invite more students to come to the University and bring new burdens upon the income of the University without relieving present urgent needs. . . . When salaries of the present teaching staff are adjusted, when necessary assistants are provided where such are urgently needed, and when the most

necessary books and equipment are provided, so that the existing departments may do satisfactorily the work which their faculties and students fairly expect, then it will be desirable to establish as soon as practicable and as opportunity offers for securing such scholars as would be desirable for those positions, new departments such as mentioned."

The question of the possible discontinuance of instruction in certain elementary subjects, as mathematics and the modern languages, was submitted to the Board, and the conclusion reached that no work at present given in the University should be discontinued, it being the judgment of the Board that,

"It should be possible for a student who has graduated from any good high school, which offers a four years' course, to enter the University, and having selected his major subject, to find offered by the University instruction in any subject which may be needed for the successful conduct of the work of his chosen field."

'If the Advisory Board proves to be in fact, as it is in theory, the mouthpiece of the Academic Council in matters within its scope, the President of the University, while retaining the initiative in all academic matters, will nevertheless naturally regard the veto of the Board as final. Under usual or normal conditions, no nomination for appointment or promotion, and no removal, will be made by the President against the judgment of the Advisory Board. So long as mutual confidence exists between the University Council and the University Executive, this arrangement will tend to keep each in touch with the other.)

During the year 1904-05 two courses of lectures of special interest were given, one by Rev. Charles R. Brown of the First Congregational Church of Oakland, on Social Ethics, the other by Rabbi Jacob Voorsanger of Temple Emanuel of San Francisco, on the Framework of the Old Testament Scriptures. These courses were attended by large bodies of students. They are discontinued temporarily during the present year.

In October of the current year Mr. Luther Burbank of Santa Rosa, California, gave a special course of lectures, three in number, on the production of plant life by the processes of crossing and selection. These lectures have been of special value to students. The continuance of all three of these lecture courses, and the addition of other similar courses in the future, are highly desirable.

The year 1904-05 witnessed the completion of the new Engi-

neering Building and its occupation by the professors and students in Civil, Mechanical and Electrical Engineering at the opening of the present year in September. Of the **Progress in Building** quadrangle buildings there remain to be equipped the large building devoted to the work of Geology and Mining and the small building which is to be occupied by the Department of Drawing. The exterior of the new Gymnasium is practically completed, as is also that of the new Library building. The interior finishing and equipment of these buildings will require considerable further time.

At the meeting of your Honorable Board on May 19, 1905, certain portions of the University Campus were set aside as permanent athletic grounds for the various student **Athletic Grounds** sports and contests. These grounds for the young men lie in the rear of the new Gymnasium and in front of Encina Hall. The grounds for the young women are located in the vicinity of the women's gymnasium near Roble Hall. Provision has been made for the permanent control and administration of these athletic grounds through a joint board of control composed of members chosen from the Faculty, from the Alumni and Alumnae and from the undergraduate students, the chairman of the Faculty Committee on Athletics being chairman of the joint board of control.

The principal step so far taken in the development of the new athletic grounds has been the erection of the football bleachers and the completion of the grounds for this sport. This **Football Bleachers** work has been carried out under the direction of the Training House Corporation. The bleachers accommodate 14,500 spectators. They were designed by Professor Charles B. Wing, of the chair of Structural Engineering in the University, who superintended their erection.

On November 11, 1905, the annual intercollegiate football contest with the University of California was held on the University Campus, marking the successful establishment of the principle of campus games as contrasted with games held in the city, the first game on university grounds having occurred in the fall of 1904 at the University of California.

The question of the future of football as a college sport has received wide discussion throughout the country during the past season. I may say that in the intercollegiate football games between the California universities there has been no question

of fairness or sportsmanlike attitude to be considered. The composition of both teams, and their behavior as individuals, as students, and as players, have been in all respects above criticism. But the rules of the game itself, as at present played, are, in my judgment, in great need of revision. In this connection I commend to the attention of your Honorable Board the report of the chairman of the Faculty Committee on Athletics, Dr. Frank Angell.

At a joint meeting of the presidents and athletic committees of the University of California and Stanford University held recently in San Francisco, the following resolutions were passed and a committee appointed to frame a final decision as to the future course of the two universities :

"Resolved, By the joint faculty athletics committees of the University of California and the Leland Stanford Junior University, that we recommend to the faculties of the two universities in question that the intercollegiate football contests shall be no longer held under the regulations of the present football rules committees.

"We recommend as a substitute the present English Rugby game, or else the present American game with such modifications as shall promise to eliminate existing evils."

My personal view of the situation has been expressed in the following words :

"In my judgment the present game of football, as developed under the rules committee of which Mr. Paul Dashiell is chairman, is virtually dead and must give way to something better. This may be the English Rugby game, from which our game was derived, or it may be some modification of the present game which will free it from its excesses and its parasites. . . . We have now as college authorities two lines of policy, one destructive, that is, to abolish the game outright (we have neglected its evils until they have assumed dangerous proportions, and if we abolish it and stop at that we shall certainly find the vacuum left attended with its own dangers); the other line of policy is constructive, that is, to try to abolish the evils and save the game. It is a noble game and the experiment is worth trying. If one wishes a drastic remedy, abolish not the game but the gate receipts. This would at once take away the whole array of those who make football a business. Or, we can improve the game itself. It is not very hard to discard the rules of the last few years, going back to or toward the original manly Rugby game of England. Or, we may apply to the Rugby game the additions which experience in our own game has found worth saving."

In 1904 Mr. Andrew Carnegie of New York City announced a gift of \$10,000,000 to establish a pension fund for retired pro-

fessors in the colleges and universities of the United States and Canada. The trustees of this fund, of which the President of the University is one, held their first meeting in Carnegie Pension Fund New York City on November 15th, and will hold a second meeting in March, 1906, at which time it is expected that the regulations governing the administration of the fund will be finally agreed upon.

The financial means of our colleges and universities have not kept pace with the demands upon them, nor with the ramifications of the various lines of work which the demands of the times have forced them to undertake. It is the excess of these demands, together with the rapidly increasing cost of living, that has brought the salaries of men engaged in the work of higher education to their present condition of inadequacy. To remedy this condition by insuring a provision against old age or other disability the Carnegie Foundation for the Advancement of Teaching was established. This wise and considerate benefaction should tend to strengthen the cause of higher education.

A college, as the word is usually understood in America, is a school of general training. Its work is found to be the more effective the better it is fitted to the traits of the individual, but in the nature of things its work with the individual is not limited to a narrow range of subjects. **Scientific Research** The university is a school of instruction through investigation. Its characteristics are advanced research and specialized development. As matters are, the faculty of the American university has to deal with two sets of students and two classes of instruction, those of the college and those of the university. But in both cases it is for the university to set the standard. To the university teacher, individual research is the breath of life, and it is the duty of the institution in every reasonable way to foster its development.

In the practical consideration of this problem we may take the following propositions as granted :

1. A few men, and but a few, even in the greatest universities, ever contribute very much to the direct advancement of science.
2. No one can be a great teacher without the spirit of research; without this he lags behind the progress of knowledge, and his mental equipment becomes second-hand.
3. With most men the practical purpose of research is that they may be better teachers.

4. With most men a reasonable following of students is an aid to research, not a hindrance.

5. Those who feel called to research, but who cannot or will not teach, should in general look outside the university for careers, at least until they have clearly proved their eminence.

6. The university should recognize the superior teacher or investigator by relieving him, as far as may be, of administrative drudgery, which uses up time and strength more than teaching does. Every active worker should have what he needs in the way of help of stenographers, artists, readers, curators, mechanics and the like. A man of choice powers should not waste his time on what cheap men can do. It is often best to relieve the ablest men in the department from its executive responsibility.

7. It is desirable that a university should publish the results of completed investigations of its professors, and do this in first-class form. Such publication in worthy manner is a stimulus to good work. But material brought together under stress of demand for publication is best left unprinted.

As showing the literary and scientific activities of the professors and instructors in the University, the following list of the publications by members of the University Faculty for the year ending July 31, 1905, is given :

EPHRAIM DOUGLAS ADAMS: English peace proposals before the preliminaries of Leoben, April, 1797; Document and Introduction, *American Historical Review*, July, 1905. Influence of Grenville on Pitt's foreign policy, 1787-1798, *Publications of the Carnegie Institution*, No. 13, 1904. A Napoleonic aftermath: Review of "Napoleonic studies," by J. Holland, *Dial*, January, 1905. A new history of England: Review of "England under the Stuarts," by G. M. Trevelyan, *Dial*, July, 1905. Review of "A later Pepys," by A. C. C. Gaussen, *American Historical Review*, April, 1905. Review of "Autobiography of Justin McCarthy," *Dial*, December, 1904. Review of "George Canning," by W. A. Phillips, *American Historical Review*, April, 1905. Review of "Select despatches of the British Foreign Office archives relating to the formation of the Third Coalition against France, 1804-1805"; ed. by J. H. Rose, *American Historical Review*, July, 1905.

RAYMOND MACDONALD ALDEN: Elizabethan drama in California, *Impressions Quarterly*, June, 1905. Elizabethan humours; ed. for the Stanford English Club, *Paul Elder & Co.*, 1905. Scott's "Lady of the Lake"; ed. with introd. and notes, *American Book Co.*, N. Y., 1905. Typical commencement event at Leland Stanford Junior University, *Readers Magazine*, 1905.

ROBERT EDGAR ALLARDICE: On a linear transformation, and some systems of hypocycloids, *Annals of Mathematics*, July, 1904.

- SAMUEL JACKSON BARNETT: Energiedichte, Spannung, und Druck im Magnetfeld, *Physikalische Zeitschrift*, January, 1905. Note on Dr. H. A. Wilson's Memoir 'On the electric effect of rotating a dielectric in a magnetic field,' *Proceedings of the Royal Society of London*, Series A, June, 1905.
- MRS. RUBY GREEN BELL: (with V. L. Kellogg) Notes on insect bionomics, *Journal of Experimental Zoology*, August, 1904. (with V. L. Kellogg) Studies of variation in insects, *Proceedings of the Washington Academy of Sciences*, December, 1904.
- HANS FREDERIK BLICHFELDT: Finite discontinuous primitive groups of collineations in four variables, *Mathematische Annalen*, March, 1905. Imprimitive linear homogeneous groups, *Transactions of the American Mathematical Society*, April, 1905. Theorem concerning the invariants of linear homogeneous groups, with some applications to substitution groups, *Transactions of the American Mathematical Society*, October, 1904.
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During the summer of 1905, the Seaside Laboratory of the University, on Monterey Bay, was again opened to elementary students, after having been closed, except to investigators, for a number of years. The session lasted from June 1st till July 15th, and was successful, although the attendance, eighteen in elementary classes, was light. This attendance will, however, grow with the certainty of the courses being offered each season, and it is desirable that provision be made for continuing the work.

To the calendar of important events begun in my report of last year may be added the dates:

- Feb. 28, 1905—The death of Mrs. Stanford at Honolulu.
 Mar. 24, 1905—The funeral of Mrs. Stanford at the Memorial Church.
 May 15, 1905—Dedication of the Library of the Leland Stanford Junior University.

In March, 1905, Mr. Albert Bonnheim, of Sacramento, established a prize of \$250 for the purpose of fostering discussion and study of questions dealing with ethical problems.

Prizes The competition is open to all undergraduate students in the University, and is divided into two parts, the first, a series of five prizes of \$20 each to be given to the students presenting the five best dissertations on a given subject; the second, \$150 to be given to the student, among the five presenting the best dissertations, who makes the best public discussion of the same subject. The subject for the past year has been "The Ethics of Monopolistic Control of Industry." The winners of the dissertation contest were Messrs. Dane M. Greer, James W. Mott, John E. Stewart, and Charles L. Geer. Mr. Geer also won the prize in the public discussion.

The Baron Pierre de Coubertin of Paris has renewed his gift of a gold medal to be awarded to the winner of the intercollegiate contest with the University of California known as the Carnot Debate.

During the past year Mrs. Stanford made a notable gift to the University Library, announcement of which was made after her death at the dedication of the new Library building on May 15, 1905. This consisted of the setting aside of a fund to be derived from the sale of her jewels as a special endowment for the future development of the University Library. I may here quote Mrs. Stanford's own words in announcing this gift:

"On May 31, 1899, I granted, assigned, transferred, and conveyed to the Trustees of the Leland Stanford Junior University, subject to certain terms and conditions set forth in the instrument conveying the same, all my jewels, consisting of diamonds, rubies, emeralds, and other precious stones, and directed that the proceeds of the sale of such jewels, or so much thereof as might be necessary, be used in payment for the erection and completion of the Memorial Church, then about to be started. Excepting such as were sold or otherwise disposed of prior to the first day of June, 1903, said jewels were manually delivered to the Board. I was subsequently enabled to erect the Memorial Church without the necessity of resorting to the sale of these jewels.

"In view of these facts and of my interest in the future development of the University Library, I have now requested the Trustees to establish and maintain a library fund, and upon the sale of said jewels, after my departure from this life, I desire that the proceeds therefrom be paid into said fund, and be preserved intact and invested in bonds or real estate as a part

of the capital of the endowment, and that the income therefrom be used exclusively for the purchase of books and other publications.

"I desire that this fund be known and designated as the Jewel Fund."

One of the great needs of the University is an expansion of its library facilities, especially in the direction of serial publications. This wise and ample gift by Mrs. Stanford of the "Jewel Fund" opens the way for meeting this need in the near future.

It is believed by the President and members of the Board of Trustees that the vesting of the power of removal of members of the University solely in the hands of the President **Appointments and Removals** in accordance with the original Deed of Grant is an arrangement not desirable as a permanency in university management. Furthermore, there seems no good reason why appointments, promotions and removals should not stand on the same footing. In view of this, the following resolution was adopted by the Board of Trustees of the University, on March 30, 1906, with the full approval of the President. This resolution, although properly belonging to the report for 1906-07, is on account of its importance incorporated here, the delay in printing the present report making this possible.

WHEREAS, It is desirable that all nominations for appointments and promotions of members of the teaching staff at the University, and all recommendations for dismissals, should be made by or through the President of the University, the Board of Trustees taking no initiative in these matters, and

WHEREAS, It is undesirable that either the power of appointment or removal should rest absolutely in the hands of a single person.

IT IS RESOLVED and agreed by the Board of Trustees and President of the Leland Stanford Junior University that so long as nominations for appointments and promotions of members of the teaching staff of the University are made by or through the President of the University, no dismissal shall be made without the concurrence of a majority of the Trustees present at a meeting of the Board of Trustees at which a quorum shall be present.

That in the case of the recommendation of the removal of a member of the teaching staff involving any question affecting his honor or moral character, he shall be furnished by the President, upon application, with a specific written statement of all charges and evidence reflecting upon his honor or moral character, and be given an opportunity to present a written statement of his answer and of any evidence he may wish to offer in defense, and a copy of all such charges and evidence, together with any answer and evidence offered by the accused, and the recommendations of the Advisory Board shall be attached to the recommendation of the President of the University, and the action of the Board of Trustees shall be based solely

upon the recommendation of the President of the University and the record attached thereto, there being no further hearing before the Board of Trustees or any member thereof, unless the Board in its discretion shall elect to receive other evidence in aid of its decision, and any such recommendation and information affecting the honor or character of a member of the teaching staff shall be presented to and acted upon by the Board of Trustees separately from anything which may involve his competency or fitness in any other respect. The members of the Board shall not in any case, or in any event, listen to or receive any statement concerning such matter except in open meeting.

Respectfully submitted,

DAVID STARR JORDAN,

President.

April, 1906.

APPENDIX I

REPORTS OF THE EXECUTIVE HEADS OF THE VARIOUS DEPARTMENTS OF INSTRUCTION

GREEK

UNDERGRADUATE COURSES

PROFESSOR MURRAY: Elementary, five times weekly, both semesters; number in the class, first semester 14, second semester 15; Greek Syntax, once weekly, first semester; number in the class 4. The Greek Epic, twice weekly, first semester; number in the class 103. Greek Tragedy, twice weekly, second semester; number in the class 125. Bucolic Poetry (Vergil and Theocritus), twice weekly, second semester; number in the class 3.

PROFESSOR FAIRCLOUGH: Homer, thrice weekly, first semester; number in the class 10. Oratory, thrice weekly, second semester; number in the class 11.

ASSOCIATE PROFESSOR ROLFE: Thucydides, thrice weekly, first semester; number in the class 4. Plato and Demosthenes, thrice weekly, second semester; number in the class 5. Teachers' Course, twice weekly, first semester; number in the course 5. Homeric Mythology, twice weekly, first semester; number in the class 46. Later Mythology, twice weekly, second semester; number in the class 136. Greek Geography, one hour, second semester; number in the class 6.

ASSISTANT PROFESSOR ELMORE: Composition and Sight Translation, twice weekly, second semester; number in the class 3.

ASSISTANT PROFESSOR FOSTER: Composition and Sight Translation, twice weekly, first semester; number in the class 4.

INSTRUCTOR MARTIN: Plato and Lysias, thrice weekly, first semester; number in the class 24. Herodotus and Homer, thrice weekly, second semester; number in the class 24. Composition and Sight Translation, two hours, both semesters; number in the class 13.

GRADUATE COURSES

The Greek Seminary was occupied with the study of Aeschylus. Meetings were held twice weekly throughout the year for the reading of the poet's work in its entirety, for lectures by the director, Professor Murray, and for the critical interpretation of selected portions of the *Agamemnon*. The seminary was made up of five students, one of whom did no critical work.

It will be noted that the two classical faculties co-operate in the work.

AUGUSTUS TABER MURRAY,
Professor of Greek.

LATIN

During the past academic year the departments of Latin and Greek have co-operated in the work of instruction. Professor A. T. Murray and Associate Professor H. W. Rolfe have given certain courses in Latin, while the several members of the Latin Faculty, viz: Professor H. R. Fairclough, Assistant Professor Jefferson Elmore, and Instructors B. O. Foster and E. W. Martin, have each given courses in Greek. In Latin, the instruction has been as follows:

UNDERGRADUATE COURSES

PROFESSOR FAIRCLOUGH: Latin Prose Composition III and IV (Latin 13 and 17 combined), 1 hr., both semesters; (20 and 19 registered). Roman Poets (Latin 30); 2 hrs., 1st semester; (27 registered). Roman Art and Monuments (Latin 31); 2 hrs., 2d semester; (93 registered).

PROFESSOR MURRAY: Bucolic Poetry (Latin 20); 1 hr., 2d semester; (2 registered).

ASSOCIATE PROFESSOR ROLFE: Terence, *Andria*; Cicero, *De Senectute*, *De Amicitia*; Horace, *Odes* and *Epodes* (Latin 3, one section); 3 hrs., both semesters; (18 and 20 registered).

ASSISTANT PROFESSOR ELMORE: Terence, Cicero and Horace (Latin 3, one section); 3 hrs., both semesters; (26 and 25 registered). Latin Prose Composition II, combined with a study of Sallust's *Jugurtha* and *Catiline*, and of Tacitus, *Agricola* (Latin 8); 2 hrs., both semesters; (26 and 23 registered). Cicero's *Letters* (Latin 10); 2 hrs., 2d semester; (16 registered). Juvenal and Martial (Latin 15); 2 hrs., 1st semester; (6 registered). Teachers' Course (Latin 18); 2 hrs., 2d semester; (18 registered). History of Roman Literature (Latin 21); 2 hrs., 1st semester; (8 registered).

INSTRUCTOR FOSTER: Latin Prose Composition I, combined with a study of Cicero, *Tusculan Disputations*, I, and *Scipio's Dream* (Latin 5); 2 hrs., both semesters; (16 and 15 registered). Livy and Tacitus (Latin 7); 3 hrs., 2d semester; (20 registered). Plautus (Latin 9); 2 hrs., 1st semester; (17 registered). Suetonius and Pliny (Latin 11); 2 hrs., 1st semester; (10 registered). Catullus, Tibullus and Propertius (Latin 12); 2 hrs., 2d semester; (7 registered). Quintilian, Bk. X and Cicero, *De Oratore* (Latin 16); 2 hrs., 2d semester; (11 registered). Roman History from original sources (Latin 22); 2 hrs., 2d semester; (4 registered).

INSTRUCTOR MARTIN: Terence and Selections (Latin 4); 3 hrs., 2d semester; (9 registered). Horace, *Satires* and *Epistles* (Latin 6); 3 hrs., 1st semester; (19 registered). Roman Private Life (Latin 32); 2 hrs., 1st semester; (29 registered).

ADVANCED COURSES

Graduate and advanced students of Latin have been organized as a Latin Seminary, the centre of work for the past year being Roman Lyric Poetry. A course of lectures was given on the history of the subject, in connection with which the principal Greek exemplars were read, as well as the fragments of earlier Latin lyric poetry, and some of the Latin hymns of Christian times. Special attention was paid to Catullus and Horace, and the members of the Seminary regularly interpreted selected poems

and presented the results of special studies. Five members of the Seminary were graduates of universities, viz: California, Chicago, Kansas, Lawrence and Toronto.

Besides the seminary course and its allied work, other advanced courses were offered by the several members of the department. A summary of this advanced instruction is as follows:

PROFESSOR FAIRCLOUGH: Seminary (Latin 23); 2 hrs., both semesters; (5 and 6 registered). Lyric Poetry (Latin 24); 2 hrs., both semesters; (5 and 6 registered). Introduction to Latin Palaeography (Latin 25). Lectures and the reading of fac-similes of manuscripts; 1 hr., 2d semester; (5 registered).

ASSOCIATE PROFESSOR ELMORE: Lectures on History of Classical Philology (Latin 28); 1 hr., 2d semester; (2 registered).

INSTRUCTOR FOSTER: Lectures on Historical Grammar (Latin 27); 2 hrs., 1st semester; (3 registered).

INSTRUCTOR MARTIN: Introduction to Latin Epigraphy (Latin 26); Lectures and readings in the Corpus Inscriptionum; 1 hr., 1st semester; (3 registered).

STATISTICS

Major students.....	62
Total number taking work (second semester) .	185
Sum of all class lists (second semester)	300
Number receiving the degree of A. B.	11
Number receiving the degree of A. M.	2

Of the two recipients of the degree of A. M., Miss Anna Laura Dunlap (A. B., Stanford, 1904) presented as a thesis "A Study of the Similes of Vergil," and Miss Mary Eva Orcutt (A. B., University of California, 1902), "A Partial Commentary on Milton's Latin Poems."

H. R. FAIRCLOUGH,
Professor of Latin.

GERMAN

The German Department aims to give:

I. From a scientific standpoint a thorough training in the whole field of German Philology and Literature, with a comprehensive insight into the historical growth of the language.

II. From a practical standpoint a general knowledge of the subject that shall enable the student to read and interpret with ease and exactness any German text.

ADVANCED COURSES

A. The German Seminary. In 1904-05, under the direction of Dr. Goebel, the philosophic essays and poems of Schiller were studied. In 1905-06 the poems of Conrad Ferdinand Meyer were studied. A comparison was made of the two existing versions of these poems as to form and treatment of the subject together with a study of the sources. This course was given by Professor Griffin until October 13th, when owing to Professor Griffin's illness it was continued by Dr. Rendtorff.

B. Philological courses for graduate and advanced students.

(1) Middle-High German. Twice weekly, first semester. This course includes a general introduction into the study of Historical Grammar. Given in 1904-05 by Dr. Goebel. Given in 1905-06 by Dr. Rendtorff.

(2) Interpretation of Middle-High German Texts. 2 hours, second semester. In 1904-05 Walther von der Vogelweide was interpreted by Dr. Goebel; in 1905-06 the period of the Minnesingers was taken up by Dr. Rendtorff.

(3) Gothic. A study of Gothic Grammar and interpretation of select passages from Ulfila. Given in 1904-05 by Dr. Goebel as a 2-hour course for the first semester. Given in 1905-06 by Dr. Skinner as a 2-hour course in both semesters.

The other philological courses are the following: The study of Old-High German and Old-Saxon, followed by the interpretation of the Heliand; a study of the Old Norse Grammar followed by the reading and interpretation of the heroic lays of the older Edda in their relation to the Nibelungenlied. In 1904-05 these courses were given by Dr. Goebel, and are not given in 1905-06.

C. Courses for the third and fourth years.

These are given mainly for students who intend to make the teaching of German their profession. Careful attention is given to the linguistic as well as to the literary training of the student. Stress is laid upon German as a living language, and some of the courses are conducted in German.

(1) Modern German Drama. Lectures in connection with the interpretation and rapid reading of some of the more important works of the modern dramatists: Heyse, Wilbrandt, Sudermann, Hauptmann, Wildenbruch, etc. 2 hours both semesters, Professor Griffin. Given by Dr. Skinner in Professor Griffin's illness.

(2) Classical German Drama, supplemented by the reading of literary and philosophical German Prose. In 1904-05 Lessing was studied during the first semester, the second semester being devoted to the study of Goethe's Tasso. In 1905-06 Goethe's Iphigenie and Schiller were studied. In 1904-05 but one section was given by Dr. Rendtorff; in 1905-06 there are two sections, one beginning under Professor Griffin and one under Professor Rendtorff.

(3) Modern German Novels. Cursory reading of standard modern novels. 2 hours, both semesters. Given in 1904-05 by Dr. Rendtorff; in 1905-06 by Dr. Skinner.

(4) German Composition. Translation of graded exercises covering the most important parts of German syntax. 2 hours, both semesters. Given in 1904-05 in two sections by Dr. Rendtorff and Professor Cooper; in 1905-06 in three sections by Instructor Schmutzler.

(5) Deutsche Stilübungen. 2 hours, both semesters. Given in 1905-06 for the first time by Dr. Rendtorff.

(6) Syntax. German Grammar treated as a science. Given by Professor Rendtorff as a one-hour course in 1904-05; changed into a two-hour course in 1905-06.

(7) History of German Civilization. Intended for students of German who wish to become acquainted with German history and the development

of German civilization in its relation to German literature. Lectures; 2 hours, both semesters.

(8) Teachers' Course. This course is intended for students who expect to become teachers of elementary German. Lectures and exercises; twice weekly. Given in 1904-05 by Dr. Goebel as a one-semester course. Given in 1905-06 by Professor Cooper as a two-semester course.

(9) Goethe. In 1904-05 Goethe's *Faust*, First and Second Parts, was interpreted by Dr. Goebel with lectures on the development of the Faust legend, the history of Goethe's *Faust*, and its philosophical and ethical ideas. In 1905-06 Professor Cooper gave a course on the life and works of Goethe; 2 hours, both semesters.

(10) The History of German Literature is given in a two-years' course by Dr. Rendtorff. The first year covers the period from the earliest times to the 18th century, the second year covers the 18th and 19th centuries. 2 hours, both semesters.

(11) Poetics. Lectures on the psychology and aesthetics of poetry as the basis for literary criticism. Comparative study of the principal theories of lyric, epic, and dramatic poetry from Aristotle to the present time. Given in 1904-05 by Dr. Goebel. Not given in 1905-06.

ELEMENTARY COURSES

(1) Elementary German, covering the elements of German grammar and leading at once to copious reading. There are four sections in this course, covering the ground in either 3 or 5 hours weekly.

(2) Second-Year German (3 hours a week), continuing the grammatical work done in Elementary German and adding to it mainly by readings from the German classics. There are four sections.

(3) This course is supplemented by a rapid reading course, which aims to introduce the students to the reading of modern German literature and also to German as a spoken language. There are three sections.

These Elementary Courses were in the hands of Professor Griffin, Assistant Professors Cooper and Skinner, Instructor Schmutzler and Assistant Phillips. Owing to the illness of Professor Griffin his courses were taken in charge by Dr. Phillips on October 13th.

KARL G. RENDTORFF,
Assistant Professor of German.

ROMANIC LANGUAGES

The faculty of the department consisted of Professor John E. Matzke, Associate Professor Oliver M. Johnston, Assistant Professors Colbert Searles and Carl C. Rice, and Instructor Stanley Smith. Sixteen courses were given during the year, representing fifty-nine hours of instruction per week.

The undergraduate work of the department is arranged so as to cover both the study of the languages and the history of their literature, and the various lines along which this study must be conducted, pronunciation, conversation, reading, syntax, composition, and literature are emphasized in the various classes. The first two years of the course are given up entirely to the study of the languages themselves, while in the third and fourth

COURSE		MAJOR STUDENTS	GREEK	LATIN	GERMAN	ENGLISH	EDUCATION	HISTORY	ECONOMICS	LAW	DRAWING	MATHEMATICS	PHYSICS	CHEMISTRY	BOTANY	PHYSIOLOGY	ZOOLOGY	ENTOMOLOGY	GEOLOGY	CIVIL ENGINEERING	MECHANICAL ENGINEERING	ELECTRICAL ENGINEERING	TOTAL REGISTRATION
1. Elementary French.....	3		6	17	33	1	10	16	12	5	5	3	1	8	5				1	8	1		135
2. Modern French Syntax.....	9		2	8	16	1	3	1	5	1	1	2	2	1					1	1		50	
3. Modern French Reading.....	10	2	4	10	21	1	10	3	10	3		2	2	1	5	2			1	1		1	
4. French Conversation.....	11		1	2	4		1	2	1				1	1								23	
5. Classical French.....	15		5	4	13		5	4	1						2							50	
6. Classical French Literature.....	7			1	2			3														13	
7. 19th Century French Literature.....	4					2																6	
8. Advanced French Composition.....	17		2	5	2			1				1		1								29	
9. French Themes.....	5			1	2																	8	
10. Elementary Spanish.....	5		3	9	8		1	3	9		2	5					2		6	2	1	56	
11. Modern Spanish Syntax.....	4		1	2	7		1		4	1									1	1		23	
12. Modern Spanish Reading.....	3		2	2	6		1		7									1		1	1	28	
14. Classical Spanish.....	2		1																			4	
18. Elementary Italian.....	3		1		4						1				1							9	

year, by the side of advanced composition and theme writing, various periods of literature are studied.

Attention is paid all along to the practical side of language study, and some of the more advanced classes are carried on in French or Spanish as the case may be. At the same time it is not the opinion of the department that the study of literature and conversation can be combined advantageously in the class room, and while the aim of the department is distinctly practical, it is believed that the best results can be obtained if the practical courses are kept distinct, thus giving the students the opportunity to make their own proper selection and allowing the instructors to concentrate all their energy on the main object of the course.

I add an outline of the work accomplished during the year. The detailed description of the courses is printed in the Annual Register of the University.

COURSE	TOTAL REGISTRA- TION	NUMBER OF SECTIONS	RECITA- TIONS PER WEEK	INSTRUCTOR
1. Elementary French	135	5	3	{ Matzke, Johnston Searles, Rice Johnston, Searles Searles, Rice Johnston, Rice Johnston Rice Matzke Rice Rice Smith Smith Smith Matzke Johnston
2. Mod. Fr. Syntax	50	2	2	
3. Mod. Fr. Reading	89	3	2	
4. Fr. Conversation	23	2	3	
5. Classical French	50	1	3	
6. Classical French Lit.	13	1	2	
7. 19th Century Fr. Lit.	6	1	2	
8. Advanced Fr. Comp.	29	1	1	
9. French Themes	8	1	1	
10. Elementary Spanish	56	2	3	
11. Mod. Span. Syntax	26	1	2	
12. Mod. Span. Reading	28	1	2	
14. Classical Spanish	4	1	2	
18. Elementary Italian	9	1	3	

Other courses indicated in the Register could not be given during the year. The table on page 33 will give an idea of the nature of the registration with regard to the various departments.

During the present year no serious changes have been introduced into the course. Professor Rice was forced to leave us on account of failing health. His place is taken by Instructor Allen, who has charge of the Spanish instruction, and we have been able to add courses in Spanish Conversation and Advanced Spanish Composition.

Graduate instruction in charge of Professor Matzke during the year 1904-05 consisted in lectures, twice weekly, on the History of French Literature during the Old French period. The Seminary was occupied with the study of Christien de Troyes' poem "*Cliges*." Its source and composition, as well as the relation to the Triston poems, was taken up in detail. In connection with this work Instructor Smith wrote a thesis on "The Source and Composition of Christien's '*Cliges*,'" which was accepted as part of the requirement for the degree of M. A.

JOHN E. MATZKE,
Professor of Romanic Languages.

- bane, *Erwin & Co.*, 1905. Ett tjugonde seklets universitet, *Ord och Bild*, June, 1905. The place of Linnæus in history of botany, *Journal of Botany*, September, 1904. Principles of phytogeographical nomenclature, *Botanical Gazette*, March, 1905. Review of Skottsberg's 'On the zonal distribution of South Atlantic and Antarctic vegetation,' *Botanical Gazette*, April, 1905. Review of Wille's 'Ueber die gattung Gloionema Ag.: eine Nomenclaturstudie,' *Botanical Gazette*, October, 1904. Soconusco, a fertile corner of the Republic, *Modern Mexico*, July, 1905. Sorgens fé, *Vestkusten*, December, 1904.
- GEORGE JAMES PEIRCE: Artificial parasitism; a preliminary notice, *Botanical Gazette*, September, 1904. Dissemination and germination of *Arceuthobium occidentale*, Eng., *Annals of Botany*, January, 1905.
- GEORGE CLINTON PRICE: Further study of the development of the excretory organs in *Bdellostoma stouti*, *American Journal of Anatomy*, December, 1904.
- SAMUEL SWAYZE SEWARD, JR.: (with A. G. Newcomer) Rhetoric in practice, *H. Holt & Co.*, N. Y., 1905.
- DAVID SAMUEL SNEDDEN: Arithmetic; possibilities of scope and method as suggested by the new state text, *Western Journal of Education*, March, 1905. Conditions of developing special teachers of drawing and manual training in every school, *Western Journal of Education*, March, 1905. Getting results in composition, *Western Journal of Education*, October, 1904. Synopsis of report of Committee of Seven, of California Teachers' Association, on revenues and salaries, *Western Journal of Education*, February, 1905. To what extent may the training given in our California State Normal Schools prepare for secondary school teaching? *Western Journal of Education*, May, 1905.
- ROBERT EVANS SNOODGRASS: The Coulee cricket of Central Washington, *Journal of the New York Entomological Society*, XIII, June, 1905. The Hypopygium of the Dolichopodidae, *Proceedings of the California Academy of Sciences*, 3d series, III, September, 1904. The Hypopygium of the Tipulidæ, *Transactions of the American Entomological Society*, XXX, 1904. (with E. Heller) Shore fishes of the Revillagigedo, Clipper-ton, Cocos, and Galapagos Islands, *Proceedings of the Washington Academy of Sciences*, VI, January, 1905.
- WILLIAM FREEMAN SNOW: Source of infection of the Palo Alto milk supply, *Fish's Typhoid Fever Epidemic of Palo Alto, Cal.*, p. 37-49, 1905.
- JOHN OTTERBEIN SNYDER: Critical notes on *Mylocheilus lateralis* and *Leuciscus caureus*, *Report of the U. S. Fish Commission*, 1904; Appendix. Notes on the fishes of the streams flowing into San Francisco Bay, Cal. *Report of the U. S. Fish Commission*, 1904; Appendix. (with D. S. Jordan) Description of a new species of fish (*Apogon evermanni*) from the Hawaiian Islands, with notes on other species, *Proceedings of the U. S. National Museum*, XXVIII, 1904. (with D. S. Jordan) Notes on collections of fishes from Oahu Island and Laysan Island, Hawaii, with description of four new species, *Proceedings of the U. S. National Museum*, XXVIII, 1904. (with D. S. Jordan) On the species of White Chimæra from Japan, *Proceedings of the U. S. National Museum*, XXVII, 1904.

A course in the history of English literature from 1660 to 1789, three hours a week throughout the year, required of all major students in English, the first semester dealing with a study of the Restoration period and the later age of Pope and Swift; the second semester, with the age of Samuel Johnson and the beginnings of the so-called "romantic movement." Enrollment, 40.

A course in early Nineteenth Century literature (the age of Coleridge, Wordsworth, Shelley, Byron, Scott and the Reviewers), two hours a week during the first semester, for juniors and seniors of all departments. Enrollment, 40.

A course for graduate students in the history of English literary criticism, two hours a week throughout the year, the work including lectures on the development of critical methods and the principal theories of poetry, from the sixteenth to the nineteenth century, one hour of each week being given to a seminary, with papers by the members of the course embodying the results of original research on assigned topics. Enrollment, 7.

Conducted by PROFESSOR SEWARD: A course in the writing of narratives, one hour a week, both semesters, for students recommended by their instructors in course English 8. Enrollment, 25.

English 12, a course intended for students expecting to teach English in secondary schools; two hours a week, both semesters. Enrollment, 24.

English 16, a historical course in English drama from the earliest times up to the age of Shakespere; two hours a week during the second semester. Enrollment, 18.

English 8, a general course in composition, given in seven sections, divided among four instructors, as follows: Professor Seward, one; Instructors Hall, Bonnell and White, two each; two hours a week for both semesters, for second-, third- and fourth-year students of all departments, the work consisting of the writing of three one-page themes a week, with longer papers from time to time. Enrollment, 222; an average of 32 to a section.

English Philology 1, a course in Anglo-Saxon language and literature, given jointly by Professors Alden and Seward, each for one semester, three hours a week, for English major students who desired recommendation as teachers. Enrollment, 20.

Conducted by INSTRUCTOR PUTNAM: English Philology 2, a course in Chaucer, two hours a week during the second semester, for majors in English, the class work consisting of the rapid reading of the *Nonne Preestes Tale*, followed by a close reading of the *Prologue*. Enrollment, 39.

Conducted by INSTRUCTOR HALL: An advanced course in exposition, with two hours credit, during the second semester, for students who had completed English 8, the work consisting of lectures upon the principles of exposition, and of the criticism and discussion of themes. Enrollment, 13.

Conducted by INSTRUCTOR BASSETT: A course in vocal expression, throughout the year, the class being divided into four sections, meeting three times each week, the purpose of the course being to offer training in the use of the voice in speaking, and to study the principles of expressive speech. Enrollment, 124.

An advanced course in vocal expression, two hours a week, the first semester, designed particularly for students intending to teach English in the public schools. Enrollment, 32.

In March, 1905, Mr. Albert Bonnheim, of Sacramento, established a prize of \$250 for the purpose of fostering discussion and study of questions dealing with ethical problems.

Prizes The competition is open to all undergraduate students in the University, and is divided into two parts, the first, a series of five prizes of \$20 each to be given to the students presenting the five best dissertations on a given subject; the second, \$150 to be given to the student, among the five presenting the best dissertations, who makes the best public discussion of the same subject. The subject for the past year has been "The Ethics of Monopolistic Control of Industry." The winners of the dissertation contest were Messrs. Dane M. Greer, James W. Mott, John E. Stewart, and Charles L. Geer. Mr. Geer also won the prize in the public discussion.

The Baron Pierre de Coubertin of Paris has renewed his gift of a gold medal to be awarded to the winner of the intercollegiate contest with the University of California known as the Carnot Debate.

During the past year Mrs. Stanford made a notable gift to the University Library, announcement of which was made after her death at the dedication of the new Library building on May 15, 1905. This consisted of the setting aside of a fund to be derived from the sale of her jewels as a special endowment for the future development of the University Library. I may here quote Mrs. Stanford's own words in announcing this gift:

"On May 31, 1899, I granted, assigned, transferred, and conveyed to the Trustees of the Leland Stanford Junior University, subject to certain terms and conditions set forth in the instrument conveying the same, all my jewels, consisting of diamonds, rubies, emeralds, and other precious stones, and directed that the proceeds of the sale of such jewels, or so much thereof as might be necessary, be used in payment for the erection and completion of the Memorial Church, then about to be started. Excepting such as were sold or otherwise disposed of prior to the first day of June, 1903, said jewels were manually delivered to the Board. I was subsequently enabled to erect the Memorial Church without the necessity of resorting to the sale of these jewels.

"In view of these facts and of my interest in the future development of the University Library, I have now requested the Trustees to establish and maintain a library fund, and upon the sale of said jewels, after my departure from this life, I desire that the proceeds therefrom be paid into said fund, and be preserved intact and invested in bonds or real estate as a part

No instruction was given in Philosophy beyond a certain amount of thesis work to help out students who had advanced too far in the subject to be able to change over to some other department without serious loss of time. These students, three in number, filled out their work with such courses as the University had to offer in subjects allied to Philosophy.

FRANK ANGELL,
Professor of Psychology.

EDUCATION

During the academic year 1904-05, Associate Professor Cubberley was absent from the University on sabbatical leave, spending the summer of 1904 and the first semester of the year in travel and in studying the school systems of Germany and Switzerland; and the second semester of the year working in the library of Columbia University and in studying school systems in the vicinity of New York City.

Instructor Suzzallo was also absent for the year at Teachers' College, New York, where he held a lectureship in elementary education and the acting headship of that department in the absence of Professor McMurray.

Mr. W. W. Kemp, A. B., Stanford, 1898, and Principal of the Longfellow School of Alameda, a temporary assistant, gave a course in the history of education in Europe, the class numbering 48 the first semester and 47 the second semester.

Mr. E. R. Snyder, A. B., Stanford, 1905, an instructor in the San Jose State Normal School, acted also as assistant in the department, giving a two-hour course in city school administrative problems the first semester, the class numbering 22; and a similar course in school management the second semester, the class numbering 49.

During the year 1904-05 Assistant Professor Snedden, acting executive head of the department, gave the following courses:

1. Introduction to Educational Theories and Practice, 2 hours, both semesters, 115 students the first semester, and 112 the second semester.

4. Elementary Schools, 3 hours, first semester, 46 students.

5. Secondary Schools, 3 hours, second semester, 48 students.

7. Education and Society, 2 hours, both semesters, 27 students the first semester, and 48 the second.

8. Courses of study for elementary schools, a seminary course, 2 hours each semester, meeting Saturday mornings, 16 students the first semester, 13 the second, most of the students being school principals and superintendents from within a radius of forty miles.

13. Special advanced courses, in which individual pieces of work were outlined for investigation and report, 5 students the first semester, and 10 the second.

18. A Journal Club, 23 students the first semester, 25 students the second.

The number of major students in the department during the year 1904-05 was 21, 4 being in graduate standing. For the current year the

upon the recommendation of the President of the University and the record attached thereto, there being no further hearing before the Board of Trustees or any member thereof, unless the Board in its discretion shall elect to receive other evidence in aid of its decision, and any such recommendation and information affecting the honor or character of a member of the teaching staff shall be presented to and acted upon by the Board of Trustees separately from anything which may involve his competency or fitness in any other respect. The members of the Board shall not in any case, or in any event, listen to or receive any statement concerning such matter except in open meeting.

Respectfully submitted,

DAVID STARR JORDAN,

President.

April, 1906.

will then be given one hour credit less than is given to those who have done the full amount of work.

Professor Farrand has been granted leave of absence for the year 1905-06 to enable him to complete in eastern libraries certain studies upon the formation of the Federal Constitution upon which he has been engaged for some time. During the year he will give a course of lectures at Cornell University. A portion of his work will be carried by Mr. Payson J. Treat (A. M., Columbia, 1903), who has been appointed an instructor in the department for one year. By an arrangement with the departments of Greek and Latin the work in Ancient History will hereafter be conducted by Professor H. W. Rolfe. But it is understood that this subject is still specifically a history subject, with credit to be given to history majors taking the work.

No regular number of hours in history is required of history majors for graduation, but each candidate in addition to the necessary number of introductory and intermediate courses must have completed successfully at least one advanced course. During the year 1904-05 there were, in addition to special work and to the joint course in historical training, twenty-four regular courses given. A list of these courses, giving the names of the instructors, the hours of credit and the attendance each semester, will be found in the following table:

INSTRUCTOR	COURSE	NO. HOURS PER WEEK	NO. OF STUDENTS FIRST SEMESTER	NO. OF STUDENTS SECOND SEMESTER
Cannon.....	1. Greece.....	2	52	46
Show.....	3a and b. Middle Ages.....	3	67	70
Cannon.....	4a and b. English History.....	3	162	158
Adams.....	5a and b. Mod. European History.....	2	47	64
Duniway.....	6. American Colonial History.....	3	76	55
Farrand.....	9. Westward Movement.....	3		70
Duniway.....	10. Pacific Slope.....	3	51	
Cannon.....	11a and b. Eng. Const. History.....	2	21	18
Show.....	12. Empire and Papacy.....	2	5	
Show.....	13. Italian Renaissance.....	1		18
Adams.....	14. Europe since 1789.....	2	14	12
Department.....	21. Historical Training.....	1	47	53
Farrand.....	22. Bibliography and Criticism.....	2	28	
Show.....	27. Painting of Ital. Renaissance.....	2	1	
Adams.....	31. 19th Century English History.....	2	6	5
Farrand.....	32. U. S. Constitutional History.....	2	8	19
Farrand.....	33. Westward Movement.....	2	3	4
Duniway.....	34. Later American History.....	2		6
Farrand.....	{ 36. United States History.....	2	11	
Duniway.....		2		
Duniway.....	38. Pacific Slope.....	2		3
The Department in general	{ Graduate work.....		2	2
	{ Special Undergraduate work.....	3	1	
	{ Special Undergraduate work.....	2		2
	{ Special Undergraduate work.....	5		1

E. D. ADAMS,
Associate Professor of History.

ECONOMICS

The members of the department are S. J. McLean, Associate Professor; H. A. Millis, Assistant Professor; A. C. Whitaker, Assistant Professor; Miss H. L. Sprague, student assistant.

The classes taught and the enrollment in each for the first and second semesters of the year 1904-05 are given in the subjoined table. For the sake of comparison this table covers the details for the first semester of the year 1905-06:

INSTR.	COURSE	NO. HOURS PER WEEK	FIRST SEM. 1904-5	SECOND SEM. 1904-5	FIRST SEM. 1905-6
McLean.....	1. Elements of Economics.....	3	227	190	190
Millis	2. Principles of Economics.....	2	19	19	40
Whitaker....	3. Economic Theory.....	2	9	4	6
"	4. Money and Banking.....	3	32	26	83
McLean.....	5a. Railway Rates.....	2		8	19
Whitaker....	6. Corporations and Trusts.....	2	39	28	47
Millis	8. Public Finance.....	3	15	15	13
"	10. Industrial History.....	3	12		
"	11. Labor Problem.....	3	32		25
"	12. Financial History of the U. S....	3		12	
McLean.....	15. Thesis Course.....	1	5	3	1
"	16. Railway Regulation in the U. S.	2	13		11
"	17. Railway Regulation in England.	2		5	

Enrollment in classes:

1st Semester 1904-05	2d Semester 1904-05	1st Semester 1905-06
403	310	435

The courses numbered Economics 1 and Economics 2 are fundamental in the department. Economics 1 is a prerequisite to further work, while Economics 2 is also required of Economics majors. The policy has been adopted this year of dividing these classes into quiz sections. In Economics 1 there are two lecture periods a week and five quiz sections; while in Economics 2 there are two such sections. This has enabled the instructors to exercise closer supervision over the work of beginners.

During the year 1904-05 the Master's degree was conferred on one student of the department. The thesis submitted for this degree was entitled, "The Marketing of California green deciduous Fruit in the Eastern States." The enrollment of major students in the department, by semesters, is as follows:

1st Semester 1904-05	2d Semester 1904-05	1st Semester 1905-06
76	77	85

S. J. McLEAN,
Associate Professor of Economics.

LAW

The teaching force in the Law Department at the beginning of the academic year 1904-05 comprised Professor Nathan Abbott, Assistant Professors Charles Ross Lewers, James Taylor Burcham (the latter being absent on leave), and William Cullen Dennis, and Instructor Arthur Martin Cathcart.

At the close of the year Assistant Professors Lewers, Burcham and Dennis resigned.

The registration of students in the department was: Graduates 16, undergraduates 175, special 18, total 209, of which 205 were men and 4 women.

During the year instruction has been given as follows:

INSTR.	SUBJECT	HOURS PER WEEK DURING YEAR	NUMBER OF STUDENTS	
			FIRST SEMESTER	SECOND SEMESTER
Cathcart....	Contracts.....	3	45	42
Lewers.....	Crimes.....	3	46	45
Cathcart....	Torts.....	2	40	39
Abbott.....	Property I.....	3	41	42
Cathcart....	Agency.....	2	52	51
Lewers.....	Damages.....	2	32	
Lewers.....	Public Service Companies....	2		32
Dennis.....	Evidence.....	3	17	17
Abbott.....	Property II.....	3	28	28
Lewers.....	Suretyship and Mortgages....	3	26	24
Lewers.....	Constitutional Law.....	3	8	7
Dennis.....	Corporations.....	3	9	8
Abbott.....	Property III.....	3	8	8

*Owing to the illness of Instructor Cathcart, the class in Agency was conducted by Assistant Professor Lewers from October 15, 1904.

The number of volumes added to the Law library from May 27, 1904, until May 26, 1905, was 134, making the total number in the Law library at the latter date 7940.

NATHAN ABBOTT,
Professor of Law.

MATHEMATICS

Instructors: R. E. Allardice, Professor (absent on leave); R. L. Green, Professor; G. A. Miller, Associate Professor; H. F. Blichfeldt, Assistant Professor.

In this department the courses for the first, second and third years are practically prescribed; but in his fourth year, the student is allowed a certain amount of freedom of choice. Certain courses may be attended by a student either in his fourth year of undergraduate study or in his first year of graduate study. These courses vary considerably from year

to year. For the purposes of this report they are classed as intermediate courses.

GRADUATE COURSES

Professor Miller gave the following courses:

1. Elementary Theory of Groups. Three times a week through the year. Enrollment, 3.
2. Theory of Numbers. Twice a week through the second semester. Enrollment, 2.

INTERMEDIATE COURSES

1. Modern Analytical Geometry. Twice weekly through the year. Professor Green. Enrollment, 5.
2. Theory of Equations. Three times weekly through the year. Professor Green. Enrollment, 8.
3. Projective Geometry. Twice weekly through the first semester. Professor Miller. Enrollment, 3.
4. History of Mathematics. Twice weekly through the second semester. Professor Miller. Enrollment, 7.

UNDERGRADUATE COURSES

1. Geometry. Twice a week through the year. Professor Blichfeldt. Enrollment, 13.
2. Algebra. Twice a week through the year. Professor Green. Enrollment, 28.
3. Trigonometry. Twice a week through the first semester. Professor Miller. Enrollment, 26.
4. Solid Geometry. Twice a week through the second semester. Professor Miller. Enrollment, 31.
5. General Astronomy. Twice a week through the year. Professor Miller. Enrollment, 4.
6. Introduction to Calculus. Twice a week through the year. Professor Green. Enrollment, 4.
7. Co-ordinate Geometry. Twice a week through the year. Professor Blichfeldt. Enrollment, 7.
8. Calculus. Thrice a week through the year. Professor Blichfeldt. Enrollment, 9.
9. Differential Equations. Thrice a week through the year. Professor Blichfeldt. Enrollment, 6.

R. E. ALLARDICE,
Professor of Mathematics.

APPLIED MATHEMATICS

The work of the Department of Applied Mathematics during the past year has been confined to the courses required of students in Engineering.

During 1904-05 the active instructional force consisted of Professor L. M. Hoskins, Assistant Professor H. C. Moreno, and Instructor G. I. Gavett. Mr. Gavett supplied the place of Instructor W. A. Manning, who was on leave of absence for the year. There were also employed the fol-

lowing student assistants: G. D. Barnett, L. E. Cutter, R. A. Gulick. The work of the assistants was the correction of exercises required in connection with regular class instruction.

The following detailed statement shows the classes conducted by each teacher in the department, with the number of students enrolled:

By Professor Hoskins: Course 6, Theoretical Mechanics, five times per week through the year. Enrollment for the first semester 87, for the second semester 76.

The course in Hydraulics, scheduled under "Engineering." This embraced course 3a, Hydrostatics and Hydraulics, three times per week during second semester, enrollment 56, and course 3b, three times weekly during the first semester, enrollment 45.

By Assistant Professor Moreno: Course 1, Algebra, five times per week during the first semester; enrollment 60.

Course 2, Solid Geometry, twice a week during the first semester; enrollment 26.

Course 3, Trigonometry, three times per week each semester; enrollment first semester 37, second semester two sections numbering 57 and 52.

Course 4, Co-ordinate Geometry, five times per week during the second semester; enrollment 56.

Course 5, Calculus, three times per week through the year; enrollment first semester 44, second semester 42.

By Instructor Gavett: Course 1, Algebra, five times per week for the first semester. Two sections with total enrollment of 101.

Course 2, Solid Geometry, twice a week during the first semester; enrollment 24.

Course 4, Co-ordinate Geometry, five times per week during the second semester; two sections with total attendance of 84.

Course 5, Calculus, three hours per week during the year; enrollment first semester 37, second semester 26.

The teaching force of the department for 1905-06 consists of Professor L. M. Hoskins, Assistant Professor H. C. Moreno, and Instructor W. A. Manning. The following student assistants are employed: T. G. Brown, A. Ranum, H. W. Stager, R. A. Fuller, H. R. Thomas and C. H. Paxton. The classes conducted during the first semester are as follows:

By Professor Hoskins: Course 5, Calculus, three times per week; enrollment 110.

Course 6, Theoretical Mechanics, five times per week; enrollment 117.

Course 3b in Engineering, Hydraulic Motors, twice a week; enrollment 31.

By Assistant Professor Moreno: Course 1, Algebra, five hours per week; number enrolled 77.

Course 2, Solid Geometry, two hours per week; number enrolled 41.

Course 3, Trigonometry, three hours per week; enrollment 95.

By Instructor Manning: Course 1, Algebra, five hours per week; two sections, numbering 77 and 52.

L. M. HOSKINS,
Professor of Applied Mathematics.

PHYSICS

The faculty of the Physics Department consisted for the year 1904-05 of Professor Sanford, Associate Professor Stearns, Assistant Professors Rogers and Barnett, and Instructor Brown. Professor Stearns was absent on sick leave during the entire year. Part of his regular courses were given by the other members of the department with the help of laboratory assistants C. K. Studley and G. N. Brown.

The work of the Physics Department consists largely in giving elementary instruction in Physics to students whose major work is in other departments. This elementary instruction is mostly given in the laboratories, and on that account requires a great deal of time of the instructors. During the year the class rolls of the department included 407 names, but there were only ten major students in Physics, two of these being graduate students.

The following courses were given during the year:

Courses given by Professor Sanford: Elementary Optics, a laboratory course requiring two laboratory periods of three hours each per week during both semesters. Two students were enrolled the first semester, nine the second.

Experimental Optics, a laboratory course of two periods per week the second semester, following Elementary Optics. Enrollment, 2.

Heat and Light, a course given especially for Electrical Engineers, consisting of two lectures and two laboratory periods per week for the first semester. Given in conjunction with Instructor J. G. Brown. Enrollment, 32.

General Physics, an advanced lecture course for Physics majors, three lectures per week throughout the year. Enrollment, 7.

Teachers' Physics, a one-hour lecture course throughout the year for students who are preparing for high school teaching. Four students were enrolled.

Investigation. In addition to the regular courses given by Professor Sanford, three students were engaged upon the investigation of original problems under his supervision and two students prepared seminary reports upon special topics under his direction.

Courses given by Professor Rogers: Dynamics. Given in conjunction with Instructor J. G. Brown and with the assistance of G. N. Brown and C. K. Studley, an elementary course consisting of one lecture and two or three laboratory periods per week, both semesters. 81 students were enrolled the first semester and 39 the second.

Electricity and Magnetism. An elementary course consisting of one lecture and two or three laboratory periods per week. 44 students the first semester, 34 the second.

Vibratory Motion. An advanced course of three lectures per week for the first semester; 2 students.

Thermodynamics. An advanced course of three lectures per week for the second semester; 3 students.

History of Physics. Lectures and assigned readings two periods per week for the second semester; 3 students.

Courses given by Professor Barnett: Electricity and Magnetism. An elementary course consisting of two lectures and two laboratory periods per week, both semesters; 25 students the first semester, 34 the second.

Electrical Theory and Measurements. A course given as a continuation of the elementary course mentioned above and consisting of one lecture and two laboratory periods per week, both semesters; 6 students the first semester, 14 the second.

Electrical Theory. An advanced course consisting of three lectures per week for the first semester; 3 students were enrolled.

Courses given by Instructor Brown: Dynamics. With Professor Rogers as above.

Heat and Light. With Professor Sanford as above. The part pertaining to Heat was given by Mr. Brown and required one lecture and two laboratory periods per week for one semester; 32 students.

Heat. A course consisting of one lecture and two laboratory periods per week for the second semester; 19 students.

The facilities for work in the physical laboratory were greatly improved during the year by the fitting up of more rooms for laboratory use, and especially by the installment of an independent electric plant for the use of the laboratory. At the close of the year Professor Barnett resigned from the department faculty and Professor E. R. Drew was elected in his place.

FERNANDO SANFORD,
Professor of Physics.

CHEMISTRY

The courses of instruction in Chemistry given during the year 1904-05, and the attendance upon them, were as follows:

	LECTURE COURSES	INSTRUCTOR	ATTENDANCE	
			1ST SEM.	2D SEM.
General Inorganic Chemistry.....	2 hours throughout the year.	Asst. Prof. Swain	153	106
Principles of General Inorganic Chemistry and Theories of Chemistry.....	2 hours throughout the year.	Prof. Stillman	34	33
Organic Chemistry.....	2 hours throughout the year.	Assoc. Prof. Franklin	19	12
Industrial Chemistry.....	2 hours throughout the year.	Prof. Stillman	11	8
Qualitative Analysis.....	1 hour each semester.	Prof. Lenox	23	37
General Physical Chemistry.....	3 hours throughout the year.	Assoc. Prof. Young	7	6
Advanced Organic Chemistry.....	2 hours, first semester.	Assoc. Prof. Franklin	6	
Theories of Analytical Chemistry.....	1 hour, second semester.	Assoc. Prof. Young		24
Physiological Chemistry.....	2 hours throughout the year.	Asst. Prof. Swain	2	2
Seminary in Chemistry....	1 hour throughout the year.	Profs. Stillman, Franklin, Young and Asst. Prof. Swain	6	6
			<u>261</u>	<u>234</u>

In addition to these courses, informal lectures were given by Professor Lenox, 1 hour each semester on Assaying, and by Instructor Cox on Qualitative Analysis technique, 1 hour each semester, in connection with laboratory class-work; but for which no special registration was made, nor separate credit allowed.

LABORATORY COURSES

	INSTRUCTOR	ATTENDANCE	
		1ST SEM.	2D SEM.
General Inorganic Chemistry	Asst. Prof. Swain and student assistants Crawford, Fitzgerald, Comings	114	47
2 afternoons both semesters.			
Qualitative Analysis	Prof. Lenox and student asst. Sherry	23	37
3 afternoons each semester.			
Preparation of Typical Carbon Compounds		3	9
..... Assoc. Prof. Franklin and student asst. Burke			
3 afternoons either semester.			
Quantitative Analysis	Instr. Cox (under direction of Prof. Stillman)	19	17
3 or 4 afternoons either semester.			
Mineral Analysis	Profs. Stillman, Lenox and Instr. Cox	11	10
3 or 4 afternoons either semester.			
Physical-Chemical Measurements	Assoc. Prof. Young and student assistant Burke	0	1
3 to 5 afternoons either semester.			
Physical-Chemical Research	Assoc. Prof. Young and student assistant Burke	2	3
Hours as arranged.			
Physiological Chemistry	Asst. Prof. Swain	3	1
3 afternoons both semesters.			
Special Methods in Mineral Analysis	Prof. Lenox (especially Iron and Steel)		1
4 afternoons second semester.			
Analysis of Raw Materials and Products of Sugar Industry	Prof. Stillman	1	1
3 or 4 afternoons each semester.			
Elementary Organic Analysis	Assoc. Prof. Franklin		1
2 afternoons either semester.			
Assaying	Prof. Lenox and student assistant Dole	21	15
3 afternoons either semester.			
Registration for Research Work	Various, as specified later in addition to those included above.	3	4
		200	140

In addition to those registered as above, some eleven students in the first semester, and twenty-two in the second semester, occupied desks for the completion of work registered for in previous semesters.

Research work not included in above courses was carried on in 1904-05 as follows:

Associate Professor Young was occupied with a study of supercooling and superheating.

Associate Professor Franklin was engaged in a study of reactions in liquid ammonia, and a systematization of the mercuri-ammonium compounds.

Instructor Cox was engaged in a study of the preparation and stability of chromates, dichromates, and basic chromates of the heavy metals.

Mr. H. D. Gibbs, candidate for Ph. D., under direction of Professor Franklin, was engaged in the study of methylamine as a solvent, and on the delimitation of the boiling-points of ammonia, methylamine, methyl-chloride and sulphur dioxide.

Mr. W. E. Burke, under direction of Professor Young, was engaged in a study of supercooling and superheating among the hydrates of sodium thiosulphate and on a system of classification of these by hydrates.

Mr. N. E. Dole, candidate for Chemical Engineer, was engaged in a study of certain conditions affecting the chemical purification of boiler feed waters, under direction of Professor Stillman.

Mr. R. H. Sherry, candidate for A. M., was occupied with a study of optical activity in liquid ammonia solutions, under direction of Professor Franklin.

Mr. F. C. Winter, under direction of Professor Young, was occupied with a study of the influence of previous heating upon the supercooling of fused organic substances.

Mr. R. M. Loeser, under direction of Assistant Professor Swain, was occupied with a study of the physiological action of thallium salts.

Miss E. W. Graves, candidate for A. M. degree, under direction of Assistant Professor Swain, was occupied with the endeavor to establish the occurrence of taurine in certain marine gastropods.

The registrations in the courses were, by major subjects of students taking work, as follows:

MAJOR SUBJECT	LECTURE COURSES		LABORATORY COURSES	
	FIRST SEMESTER	SECOND SEMESTER	FIRST SEMESTER	SECOND SEMESTER
Chemistry.....	104	118	63	59
Geology and Mining.....	54	48	70	45
Physiology.....	31	25	20	14
Mechanical Engineering.....	17	9	8	9
Civil Engineering.....	21	6	16	3
Electrical Engineering.....	8	7	0	6
Physics.....	2	2	2	1
Botany.....	2	2	1	1
English.....	5	3	5	1
Law.....	4	2	2	1
Education.....	2	2	2	2
German.....	3	1	3	0
Economics.....	4	6	4	4
History.....	1	1	1	1
Mathematics.....	1	0	1	0
Zoology.....	1	2	1	1
Latin.....	1	0	1	0
	261	234	200	148

The department found it expedient to make certain differentiations, during the year, of its requirements for the A. B. degree, in recognition of certain well defined purposes which students have in view in the choice

A course in vocal interpretation, two hours a week, the second semester, the work consisting of lectures on problems of interpretation and in readings from the poems of Tennyson, Browning and Shakespere. Such poems as Tennyson's *The Lady of Shalott*, *The Lotus Eaters*, *Ulysses* and portions of *In Memoriam*, and Browning's *Andrea del Sarto*, *Abt Vogler*, *Fra Lippo Lippi* and *A Grammarian's Funeral* being assigned for general study and reading aloud. Enrollment, 26.

A course in public speaking, two hours a week, the second semester, the work consisting of lectures on public speaking and the delivery, by members of the class, of memorized selections from masterpieces of oratory, followed by delivery of original speeches on assigned topics. Enrollment, 28.

MELVILLE B. ANDERSON,
Professor of English Literature.

PSYCHOLOGY AND PHILOSOPHY

The total number of students instructed in the several courses in Psychology amounted to 241, distributed as follows:

INSTRUCTOR	COURSE	NO. HOURS PER WEEK	STUDENTS ENROLLED
Angell.....	1. General.....	3	48
Martin.....	2. Experimental.....	2	15
Angell.....			
Angell.....	3. (Not given).....	2	
Angell.....	4. Advanced Laboratory.....	3	6
Martin.....			
Martin.....	5. Emotions.....	2	71
Martin.....	6. Social Relations.....	2	78
Angell.....	7. Literature.....	1	3
Martin.....			
Martin.....	8. Systematic.....	2	8
Martin.....	9. Child.....	2	9
Angell.....			
Angell.....	10. Research.....	To be ar- ranged	3
Martin.....			

Of the above courses, 1, 5 and 6 are general in their nature and attended by students representing every department in the University, with a preponderance from the departments of Law, Physiology and English. Of the five major students in the department, three were graduates, and the others undergraduates. In this connection the question arises in how far the Department of Psychology and Philosophy is warranted in accepting undergraduates as major students.

The only possible professional career in Philosophy and almost the only career in Psychology is that of a teacher, but as these disciplines are rarely if ever taught in the secondary schools, the number of positions is absolutely and relatively small. It is also to be said that the nature of these subjects is such that it is hardly wise to advise a student to pursue them professionally until he is more mature and possessed of a greater store of learning than is the case with the typical undergraduate.

The members of the department, officers and students, meet every two weeks during term time for informal discussions of current literature and other topics of botanical interest. The management of these meetings is in the hands of students.

GEORGE J. PEIRCE,
Associate Professor of Botany.

SYSTEMATIC BOTANY AND FOREST BOTANY

During the year 1904-05 the following courses of lectures and laboratory work were offered in this department:

FOR UNDERGRADUATES

The Fungi. Five hours, two lectures and three half-days or periods in the laboratory. First semester.

The Compositæ. A study of the principles of classification, two (or three) laboratory periods. First semester.

Spermaphyta. Four hours, one lecture and three laboratory periods. Second semester.

Geographical Distribution and Forest Botany. Three hours, one lecture and two laboratory periods. Second semester.

In each of the courses named above the formal instruction of the lecture-room is supplemented by laboratory work. In the latter work Professor Dudley was assisted by P. H. Olsson-Seffer, who resigned at the end of the year to enter on economic botanical work in the tropics.

Excursions into the Santa Cruz Mountains under the guidance of an instructor are used to illustrate several undergraduate courses. Reports on the excursions are required in geographical distribution, and collections in connection with that course and the fungi.

GRADUATE WORK

During the year P. H. Olsson-Seffer, who had completed at the University of Helsingfors all except his thesis work, was granted, after required residence, the degree of Doctor of Philosophy. His thesis, based on several years' travel and observations, was a "Comparative Study of Sand-dune Floras in Europe, Australia and California."

A. C. Herre, after two years' study, completed a critical paper on the Foliose and Fruticose Lichens of the Santa Cruz Mountain Peninsula, particularly as regards their distribution, and was granted the degree of Master of Arts.

George A. Coleman during the year completed his investigations on the insects and fungi parasitic on the trees of the Monterey forests. This was only in part under the direction of this department. It had a distinct bearing on the Monterey forestry problem.

The Herbarium: The botanical survey of the Santa Cruz mountain peninsula was continued, particularly among the lower plant families.

The Herbarium was increased in its facilities in 1904 by the deposit of a large number of plants, probably 2000 sheets, belonging to Professor Vol-

ney Rattan. He has been a long-time resident of the State, and from his collections many species have been described. These specimens are loaned freely for our use.

Substantial and valuable additions have been made to the Herbarium through the gifts of Mr. C. H. Thompson, a graduate student in 1902 and 1903, former instructor LeRoy Abrams, Mr. H. P. Chandler, Mr. J. M. McMurphy, and the Department of Forestry in the Philippines.

The undersigned was one of a committee of six chosen by the United States Forestry Service, the Sierra Club, the California Waters and Forest Society, and the California State Board of Trade, to draft and revise a forestry law for the State of California. This was enacted by the Legislature, March 18, 1905. The appointment of the State Forester under this law in July terminated the connection of the Commission with the California Redwood Park, which has continued since 1902. The writer is confident that the above law, if supported, will be most important in the preservation and rational treatment of the wild plant and animal life of the State, as well as the economic resources of the latter.

WILLIAM RUSSELL DUDLEY,
Professor of Botany.

ENTOMOLOGY AND BIONOMICS

The faculty of the department was composed of David Starr Jordan, lecturer; Vernon Lyman Kellogg, professor (in Europe on leave of absence); Robert Evans Snodgrass, instructor; Ruby Green Bell, acting instructor; and Isabel McCracken, assistant. At the end of the year Instructors Snodgrass and Bell resigned and their places for the collegiate year 1905-06 were filled by the following appointments: Isabel McCracken, acting instructor; Rennie W. Doane, assistant.

The number of major students was twelve, of whom two were graduate students. The degrees granted were Bachelor of Arts, two; Master of Arts, two.

The number of students in each of the courses offered was as follows:

Course 1, Elementary Entomology, Snodgrass and Bell, laboratory course, 3 hours weekly, enrollment 23.

Course 2, Morphology and Development of Insects, Snodgrass and Bell, laboratory course, 3 hours, enrollment 13.

Course 3, Insect Ecology and Economic Entomology, laboratory course (not given, in absence of Professor Kellogg).

Course 4, General Entomology lecture course (not given, in absence of Professor Kellogg).

Course 5, Advanced Work, Snodgrass, laboratory course, 2 to 5 hours weekly, enrollment 15.

Course 6, Organic Evolution, President Jordan, lecture course, 2 hours weekly, enrollment 165.

Course 7, Variation and Heredity, laboratory course (not given, in absence of Professor Kellogg).

The principal researches pursued were the continuation (fifth year) of

the investigation of heredity and variation in the silk-worm moth, *Bombyx mori*, by Professor Kellogg and Instructor Bell, the investigation of the inheritance of dichromatism in *Lina* and *Gastroidae* by Assistant McCracken, the study of the comparative morphology of the Diptera by Instructor Snodgrass, a field study in the ecology of forest insects by Geo. A. Coleman, a systematic study of California Thysanura (about 110 species, of which 35 are new, were found) by O. E. and L. M. Bremner. In addition a number of studies in insect variation were begun by advanced students under the supervision of Instructor Bell.

V. L. KELLOGG,

Professor of Entomology.

HYGIENE

Two courses in Hygiene have been given in addition to the usual work of the physical training divisions of the department. Several students have also been given special work not scheduled. A number of minor changes have been made in the amount or nature of work required for credit in the physical training courses, and several restrictions have been placed on enrollment in certain of the sections. As was anticipated these measures have limited the number of students registered in the department, but the work done has been of a distinctly better grade and the influence of the gymnasium has been perceptibly greater.

I. HYGIENE

By Associate Professor Snow:

1. General Hygiene—a lecture course, 2 hours the first semester; 41 students enrolled.

2. Public Health—a lecture and laboratory course, 3-5 hours, second semester, 18 students enrolled. The students were deputized as special inspectors by the Santa Clara County Health Officer, and were each given the investigation of a sectional watershed area in the immediate vicinity of the University. The department wishes here to express its indebtedness to the Health Department of San Francisco, especially to Dr. Hassler, Chief of the Inspection Service, and to the officers of the Federal Quarantine Service, of the port of San Francisco, for courtesies to members of the class in their investigations.

Special work in the department:

3. School Hygiene—a course designed for students intending to teach. 3 hours for the year.

II. PHYSICAL TRAINING—ENCINA GYMNASIUM

4. Physical Training—a one-hour general training course, in four sections, throughout the year.

FIRST SEMESTER	SECOND SEMESTER
10:15 a.m.....51 students	10:15 a.m.....58 students
11:15 a.m.....118 "	11:15 a.m.....127 "
4:30 p.m.....123 "	4:15 p.m.....59 "
5:15 p.m.....135 "	5:00 p.m.....146 "
<hr/> 427 students	<hr/> 390 students

The work in these classes is largely individual or in small squads, student leaders being utilized for instruction purposes. Instructor Chappel was in charge, assisted by Assistants Lousley, Duncan, and Clark.

5. Special Gymnastic Training—a one-hour course for students who have had satisfactory preliminary training, given by Instructor Chappel. 37 men were enrolled the first semester, 50 the second.

III. PHYSICAL TRAINING—ROBLE GYMNASIUM

4. Physical Training—a course for students without previous gymnasium experience, conducted by Miss Townsend. Enrollment, first semester 69; second, 52.

5. Special Gymnasium Training—a course for advanced women students, conducted by Assistants Townsend and Bolton. Enrollment, 7 the first semester, 6 the second.

Assistant Professor Storey has been absent for the year, engaged in medical studies at the Harvard Medical School.

Valuable assistance to the Committee on Public Health and in the advising of the women students has been rendered by Dr. Edith H. Matzke.

W. F. SNOW,
Associate Professor of Hygiene.

PHYSIOLOGY AND HISTOLOGY

The following courses were given during the year 1904-05. Each course is designated by the number given in the Register for 1904-05, to which reference may be made for details of the nature of the courses.

Courses:

1. General Anatomy and Physiology. Given by Professor Jenkins, assisted in the laboratory by Assistant Professor Slonaker and Assistant Cowan during the first semester, and Assistant Professor Stoltenberg in Mr. Cowan's place during the second semester. Both semesters. 56 students enrolled.

2. Physiology of Muscle, Blood and Circulation. Given by Assistant Professor Slonaker assisted in the laboratory by Mr. Cowan. First semester. 22 students enrolled.

3. Physiology of Digestion, Respiration, Elimination of Wastes, Metabolism, and Nutrition. Given by Assistant Professor Slonaker assisted in the laboratory by Mr. Cowan. Second semester. 22 students enrolled.

4. Structure of the Nervous System. Given by Assistant Professor Stoltenberg. First semester. 15 students enrolled.

5. Histology of the Nervous System and Sense Organs. Given by Assistant Professor Stoltenberg. First semester. 15 students enrolled.

6. Physiology of the Nervous System and Sense Organs. Given by Professor Jenkins. Second semester. 12 students enrolled.

8. Special Courses in Physiology (Advanced). Given by Professor Jenkins. Both semesters. 5 students enrolled.

9. Histology. Given by Associate Professor McFarland. Both semesters. 21 students enrolled.

10. Histogenesis. Given by Associate Professor McFarland. First semester. 6 students enrolled.

11. Neurocytology. Given by Associate Professor McFarland. Second semester. 6 students enrolled.

12. Cellular Biology. Given by Associate Professor McFarland. Second semester. 2 students enrolled.

14. Special Courses in Histology. Given by Associate Professor McFarland. Second semester. 3 students enrolled.

Nature Study Course in Department of Education. Given by Professor Jenkins assisted by Miss McCracken. 30 students enrolled.

13. Anatomy. (Human Osteology and Mammalian Anatomy.) Given by Assistant Cowan. 15 students enrolled.

15. The Journal Club. The instructors and advanced students were organized into a Journal Club which met weekly to report on and to discuss the current literature in Physiology and Histology. Both semesters. 5 instructors and 15 students.

Seminary. The instructors and a number of the advanced students were organized into a Seminary of Physiology and Histology. The subjects that have been under investigation by members of the department were presented and discussed. 5 instructors, 5 students.

Dr. McFarland continued, during the year, work which has occupied him for some time on the study of the Nudibranchs of the Pacific Coast. He has published in the Proceedings of the Biological Society of Washington "A preliminary account of the Dorididæ of Monterey Bay, California." "A complete account of the Dorididæ" is in press, and work on the other groups is in progress. He has also completed a paper on "The Nudibranchs of Brazil," from the Branner-Agassiz Expedition.

Dr. Slonaker has completed a paper, as yet unpublished, including the results of investigations "On the activity of the White Rat at different ages." He is at present engaged in an investigation of "The Activity of the White Rat as influenced by Food."

Mr. Cowan has been studying the "Effect of Inorganic Salts on Cardiac and Striated Muscle."

Mr. C. E. Hyde and Mr. Victor Stork, advanced students, have through the year been engaged in the study of "The Changes in the Motor Cells of the Cord of the White Rat due to the Effect of Normal Fatigue with special reference to the Tigroid Bodies." This paper is ready for publication.

OLIVER PEEBLES JENKINS,
Professor of Physiology and Histology.

ZOOLOGY

The courses given in Zoology during the past academic year are as follows:

1. Elementary Zoology, by Associate Professor Price: Two afternoons of laboratory work and one lecture each week throughout the year, fifty-nine students.

2. Invertebrate Anatomy, by Associate Professor Heath: Two after-

noons of laboratory work and one lecture each week throughout the year; thirteen students.

3. Invertebrate Embryology, by Associate Professor Heath: Two afternoons of laboratory work and one lecture each week through the year, seven students.

4. Advanced Course in Invertebrates, by Associate Professor Heath: From two to five afternoons of laboratory work each week throughout the year; eight students.

5. The Vertebrates, by Assistant Professor Snyder: Two afternoons of laboratory work each week throughout the year with occasional lectures; seventeen students.

6. Comparative Anatomy of the Vertebrates, by Professor Gilbert and Assistant Professor Snyder: Three afternoons of laboratory work each week throughout the year, with occasional lectures; four students.

7. Vertebrate Embryology, by Associate Professor Price: Two afternoons of laboratory work including one lecture each week throughout the year; nineteen students.

8. Ichthyology, by Professor Gilbert and Mr. Starks: Two afternoons of laboratory work each week throughout the year; three students.

9. Advanced Ichthyology, by Professor Gilbert; two students.

10. Journal Club, by Professor Gilbert: One evening each week throughout the year; thirteen students.

During the year, Professor Gilbert completed his studies of the bathyhal fishes of the Hawaiian region and continued his investigation of the deep-sea fauna off the California coast.

Associate Professor Price continued his studies of the structure and functions of the pronephros in *Bdellostoma stouti*.

Associate Professor Heath was engaged in further investigations on mollusks, working especially on a monographic report on the *Solenogastres* from the Hawaiian Islands and the west coast of North America.

Assistant Professor Snyder has been engaged principally in preparing a series of reports for the U. S. Bureau of Fisheries on the fresh-water fishes of the western United States. A paper on the fish fauna of the lakes of southeastern Oregon is now in press, to be followed by a second on the coastal streams of Oregon and northern California.

Mr. Starks has investigated the osteology of the order Haplomi, of *Dallia pectoralis* and of *Caularchus mæandricus*. He has in preparation faunal papers on the fishes of Japan, of Ecuador and Peru, and of Southern California.

Mr. W. K. Fisher has concluded his studies on Hawaiian starfishes and holothurians and has in preparation a report on the starfishes from the eastern coast of the United States.

Mr. M. H. Spaulding has made progress in the investigation of the anatomy of Hawaiian heteropods.

The following papers were prepared by graduate students under the direction of Associate Professor Heath:

Miss Mary R. Cravens: (a) The Anatomy of a new species of *Nectonemertes*, (b) The Monotocard Kidney.

Mr. C. R. Palmer: (a) The relation of the Nephridia, Pericardium, and

Gonoducts in the Haliotidae; (b) The Circulatory System of *Haliotis rufescens*.

During the spring and summer of 1904, Professors Gilbert and Heath Mr. Spaulding and Mr. Fisher co-operated with the University of California and the U.S. Bureau of Fisheries in an investigation of the off-shore fauna of Southern California, the work centering about San Diego and Monterey.

The regular session of the Marine Biological Station at Pacific Grove during the summer of 1905 was under the direction of Associate Professor Price. A total of twenty-five investigators and students were in attendance.

CHARLES HENRY GILBERT,
Professor of Zoology.

GEOLOGY AND MINING

Professor Branner was absent on sabbatical leave during the first semester, but returned to the University in January, 1905.

The following courses were given in the Department of Geology and Mining during the year 1904-05:

INSTRUCTOR	COURSE	HOURS PER WEEK	STUDENTS BOTH SEMESTERS
Newsom.....	1. Elementary Geology.....	3	69
Branner.....	1a. Physiography.....	1	30
Branner, Newsom..	2. Economic Geology.....	2	43
Branner, Park....	3. Topographic Geology.....	4	16
Newsom, Nobs....	4. Field Geology.....	1 to 5	15
Smith.....	5. Mineralogy.....	2	46
Smith, Nobs.....	5b. Blowpipe Analysis.....		39
Smith.....	6. Adv. Mineral. and Petrography	3 to 4	19
Smith.....	7. Paleontology.....	2 to 4	26
Smith.....	8. Paleontology.....	2 to 5	3
Newsom.....	10. Mining.....	4	42
Lyon.....	11a. General Metallurgy.....	3	30
Lyon, Clevenger..	11b. Metallurgy of Silver.....	3	35
Lyon, Clevenger..	11c. Metallurgy of Iron, Steel....	3	28

During the summer vacation Professor Branner studied the geology in the vicinity of the headwaters of the Sacramento River. Most of his time during the vacation was occupied by executive work as Acting President—work made necessary by the absence of the President.

Field Geology.—During the summer vacation field work in geology was carried on under the direct supervision of Professor Newsom, assisted by Mr. F.W. Nobs. The work was at first on the mountainous part of the San Jose Quadrangle of the U. S. Geological Survey, in the vicinity of Calaveras Valley, and the field work on that area was completed. The party then took up the area covered by the Mount Hamilton sheet and finished the southwestern third of it. Fifteen students were enrolled in the class taking this work.

The field work lasted from May 26th to August 6th, 1905, and students

were required to work ten hours a day. The work done was all new. The results are to be published by the U. S. Geological Survey.

The party was kept together in so far as it was possible by having a camping outfit and a cook during the field season.

Paleontology.—Professor J. P. Smith studied the Triassic fossiliferous beds of Nevada in the west Humboldt range. He also visited the north end of the Wasatch Mountains in Idaho, where he made collections of Triassic fossils. He was accompanied on the latter trip by Mr. D. Slusher, a student in the Department of Geology. He also visited Shasta County, California, to study the Triassic, and was accompanied by Mr. E. M. Gleim.

Metallurgy.—Professor Lyon and Mr. Clevenger have carried on an investigation of what is known as the "Gurney process," a wet process designed for siliceous silver ores. The results of this work have not yet been published.

Mr. Clevenger has also carried on an investigation of a product formed in a matting furnace, commonly known as "iron sow." This work is still in progress. Mr. Clevenger expects to publish his results as soon as the work is finished.

Topographic Geology.—Under the direction of Professor Branner, Mr. R. N. Park, of the class of 1904, was engaged to supervise the work in topographic geology during the early part of the summer vacation. The work was done in the foothills south and west of the University.

In this work each student is required to map topographically and to work out the detailed geology over an area of one square mile, to construct a finished colored geologic map, and cross-section, to make a tracing and a blueprint of the area. There were sixteen students in the class this year.

Collections.—Many gifts of minerals and rock specimens have been made to the University collections during the year. These are for the most part sent in by graduates of the department. Large collections of fossils and rocks were also made by the students doing field work in geology during the summer.

Library.—The professors and students of the department have the use of the private library of Professor Branner, which is in rooms 81 and 82.

When the bookshelves are ready in the new Mineralogy building, the sets of books of special value for students of mineralogy will be removed to that building.

The publishers of several of our important technical periodicals have kindly donated the current numbers of their publications to the department. About twenty volumes were so donated during the year. Some of these have been bound and are in the department where they are accessible to students.

JOHN CASPAR BRANNER,
Professor of Geology.

DRAWING

The work of the department has been conducted by Associate Professor Arthur Bridgman Clark, Assistant Professor George Loftus Noyes, and Instructor Chloe Lesley Starks.

Professor Clark has instructed the following classes: Landscape Drawing and Composition, the work consisting in drawing landscape with various materials, as charcoal, pen, water-color and pencil. Enrollment, 19 students the first semester, 32 students the second.

Lectures on Art, a general lecture course twice a week the first semester, interpreting the ideals of noted artists from the thirteenth century to the present time. Enrollment, 33.

Scientific Perspective, a course the second semester taken principally by major students. Enrollment, 18.

Journal Club, one hour a week in the second semester, attended by the third- and fourth-year students of the department, to discuss the lives and works of modern artists. Enrollment, 9.

Teachers' Course, twice a week, the second semester, intended for students expecting to become professional drawing teachers. Enrollment, 12.

By Assistant Professor Noyes:

Drawing and Painting the Head from Life. Enrollment, 11 students the first semester, 8 students the second.

Drawing and Painting the Cast, a preparation for the previous course. Enrollment, 3 students the first semester, 8 students the second.

Painting Still-Life in Oils, a class for the study of color. Enrollment, 4 students the first semester, 5 students the second.

By Instructor Starks, classes as follows:

Elementary Still-Life Drawing, first semester. Enrollment, 45 students.

Scientific Drawing, instruction in making drawings for illustration of scientific papers. Enrollment, 6 students.

For the present year the same courses are continued, but with an increased enrollment and the abridgment of the landscape course to four days a week and the addition of a course in the theory and practice of decorative design by Professor Clark. The demand for graduates of this department as teachers in the normal and high schools of the State is greater than the department can meet.

A. B. CLARK,
Associate Professor of Drawing.

CIVIL ENGINEERING

During the year 1904-05 the courses given in the department have been substantially those outlined in the Register (pp. 140-142). The instruction was in the hands of Professors Marx, Wing, Hoskins, and Fish, aided by student assistants. The courses in linear drawing, descriptive geometry, mechanics of materials, and hydraulics are taken by all students in engineering, those in surveying and hydraulic motors usually by

students in civil engineering and mining, or in civil, mechanical and electrical engineering. The more specialized courses in water-supply engineering and railroad bridges are intended only for major students in civil engineering.

A tabulated statement of courses given in the Department of Civil Engineering during the year 1904-05 is as follows:

INSTRUCTOR	COURSE	NO. HOURS PER WEEK	NO. OF STUDENTS	
			FIRST SEM.	SECOND SEM.
Fish and assts . . .	Linear Drawing.....	1	128	0
" "	Descriptive Geometry.....	3	156	95
" "	Elementary Surveying, 4a.....	5	35	17
" "	Elementary Surveying, 4b.....	2	9	1
" "	Railroad Surveying.....	5	0	23
Fish.....	Railroad Location.....	2	8	0
"	Railroad Construction.....	2	0	4
Wing and assts . . .	Mechanics of Materials.....	3	50	0
Wing.....	Elements of Design, a, b, c, d.....	5	19	32
"	Railroad Bridges.....	5	8	7
Hoskins.....	Hydraulics.....	3	0	49
"	Hydraulic Motors.....	3	43	0
Marx.....	Water Supply.....	5	9	0
"	Sanitary Engineering.....	5	0	9
"	Adv. Water Supply.....	2	2	0

CHAS. D. MARX,
Professor of Civil Engineering.

MECHANICAL AND ELECTRICAL ENGINEERING

During the year 1904-05 the departments of Mechanical Engineering and of Electrical Engineering were united under the headship of the Professor of Mechanical Engineering. The teaching personnel of the departments was as follows:

W. F. Durand, Professor of Mechanical Engineering and executive head for the two departments.

G. H. Marx, Associate Professor of Machine Design.

A. A. Browne, Assistant Professor of Mechanic Arts and Superintendent of the Shops.

W. R. Eckart, Assistant Professor of Experimental Engineering.

J. E. Peterson, Foreman of Forge.

E. J. Stanley, Foreman of Woodshop.

J. B. Liggett, Foreman of Foundry.

T. Palmateer, Acting Foreman of Machine Shop.

R. H. Gaither, Assistant in Drawing.

W. W. Henley, Assistant in Machine Shop.

G. H. Rowe, Associate Professor of Electrical Engineering.

K. L. Curtis, Instructor in Electrical Engineering.

The classes taught and numbers in attendance are shown by the following tabular presentation :

INSTRUCTOR	SUBJECT	CREDIT HOURS	NO. IN CLASS	
			FIRST SEM.	SECOND SEM.
Durand.....	M. E. 6. Heat Engines.....	3	48	18
	M. E. 9. Pumping Machinery.....	2		60
	M. E. 10. Power Plants.....	2	31	28
	M. E. 2b. Alt. Current Theory	3		12
Marx.....	M. E. 3.....	5	17	27
	M. E. 4.....	4	12	11
	M. E. 5.....	2	2	12
Browne*.....				
Eckart.....	M. E. 8.....	2	38	48
Peterson.....	M. E. 1c.....	3	51	42
Stanley.....	M. E. 1a, b.....	3	98	81
Liggett.....	M. E. 1d.....	3	20	33
Palmateer.....	M. E. 1e.....	3		40
Gaither.....	M. E. 2.....	2	59	53
Henley.....	M. E. 1e (during last 12 weeks of term).....	3	37	
*Was on duty for about six weeks only during early fall of 1904 and was incapacitated by physical condition from rendering more than partial service during this time.				
Rowe.....	E. E. 1.....	3	21	
	E. E. 4.....	3	18	
	E. E. 7.....			
	E. E. 8.....	2	17	
Curtis.....	E. E. 1 (Lab.).....	1	21	
	E. E. 2.....	3	10	
	E. E. 3.....	2	8	8
	E. E. 4.....	3		17
	E. E. 5.....	2	18	17
	E. E. 7.....			
	E. E. 8.....	2		17

During the first semester, 1407 student credit hours of instruction per week were given by an instructing corps of 10 men, or practically 141 student credit hours per instructor on the average.

For the second semester, the corresponding figures are 1394 student credit hours by an instructing corps of 9 men, of 155 student credit hours per instructor on an average.

These numbers are obtained by multiplying the number of credit hours in each course by the number of students attending such course, and they thus serve in a rough way to show the total bulk of instruction given and the average per instructor.

The absence of Professor Browne on sick leave was adjusted by the temporary appointment as Foreman of the Machine Shop of Mr. W. W. Henley for the remainder of the first semester, and of Mr. T. Palmateer for the second semester, while the general work of supervision which has

formed a part of Professor Browne's duties was assumed by the head of the department. The same general arrangement continues for the present year and necessarily defers the inauguration of important and needed improvements until such time as the general supervision of the shops can be placed in charge of an officer who can be permitted to devote his entire time to the correlation and general improvement of these lines of work.

At the close of the first semester, Professor G. H. Rowe tendered his resignation and the work of the Electrical Engineering department was carried forward during the second semester by Mr. Curtis and by the executive head.

For the current year the personnel of the Department of Mechanical Engineering is modified in the following particulars:

(1) Mr. S. J. Dennis was appointed instructor in Mechanical Engineering.

(2) Mr. T. Palmateer was reappointed as Foreman of Machine Shop for the year.

(3) Mr. E. J. Stanley was granted leave of absence for the year, and Mr. John Stack was appointed for the year in his place.

(4) Mr. R. A. Hudson was appointed assistant in Mechanical Drawing vice Mr. R. H. Gaither.

The relation of the writer to the Department of Electrical Engineering as executive head ceased with the opening of the current year, and all matters having relation to the year 1905-06 will be left for report by Professor H. J. Ryan, as head of department.

The immediate objectives which guided the administration of the department of Mechanical Engineering during the year 1904-05 were in brief as follows:

(1) General improvement in the course of instruction with special reference to the co-ordination of the various elements into a concrete whole, and the welding of the various subdivisions of the department into a coherent and unified educational force.

(2) Improvement in the course in shopwork by some reduction in the amount of handicraft work, and the development of class work with illustrative and demonstrative lectures relating to the same general lines of work.

(3) Improvement in the courses in mechanical laboratory work by the development of a more definite routine of work and of a carefully prepared system of blanks and forms as an aid in recording the details of the observations and in their reduction and presentation in the form of final results.

(4) Improvement in the courses of drawing and design by the provision of sets of machine elements to serve as direct drawing material in the more elementary work, and additions to our collections of blueprints and illustrative material for the more advanced courses.

(5) The development in the seminary room of a well stocked store of engineering information data and precedent, and its classification and organization in form most convenient for use.

The same general purposes are still in view for the current year and substantial progress has been made in many details of the development.

At the same time many special branches of the broad field of Mechanical Engineering are held in view for occupation as soon as the middle road course is thoroughly well in hand and the resources of the University will permit.

The occupation of the new engineering building for the year 1905-06 has vastly increased our facilities for satisfactory work along class and lecture room lines, and the early occupation of the addition to the present machine shop will provide room for much needed expansion in this branch of the work.

W. F. DURAND,
Professor of Mechanical Engineering.

ELECTRICAL ENGINEERING

The present head of the department began active duty August 1, 1905. It is his duty at this time, therefore, to report upon changes that have been made for the current year 1905-06.

Mr. S. B. Charters was appointed instructor in Electrical Engineering at the beginning of the present university year.

Mr. K. L. Curtis was reappointed instructor in Electrical Engineering.

The teaching personnel of the department is now sufficient to undertake a complete curriculum in electrical engineering instruction and training. This statement refers: first, to the present numbers of students registered in electrical engineering classes; and second, to a curriculum that in character and extent is most effective in a four-year undergraduate course in electrical engineering based upon the present entrance requirements.

Below is given a statement of the work of instruction as now carried on.

FOR FOURTH-YEAR STUDENTS IN ELECTRICAL ENGINEERING

First semester: Electrical Engineering Elements (in lieu of courses 4, 5, 6 and 7 as announced in the 1904-05 Register), 3 lectures per week, H. J. Ryan; 3 two-hour periods per week, designing-room, H. J. Ryan and S. B. Charters; 2 laboratory periods per week, K. L. Curtis and S. B. Charters. Seminary (8), 1 meeting per week, H. J. Ryan, K. L. Curtis and S. B. Charters.

Second semester: Electrical Engineering Practice (lectures, designing-room and laboratory, same as E. E. Elements, first semester). Seminary, same as first semester.

FOR THIRD-YEAR STUDENTS IN ELECTRICAL ENGINEERING

First semester: Continuous Currents, 3 lectures per week, course 2a, by K. L. Curtis, and course 3, 2 laboratory periods per week, by K. L. Curtis and S. B. Charters.

Second semester: Alternating Currents, 3 lectures per week, course 2b, H. J. Ryan; 2 laboratory periods per week, courses 3-5, K. L. Curtis and S. B. Charters.

**FOR THIRD- OR FOURTH-YEAR STUDENTS IN CIVIL AND MECHANICAL
ENGINEERING, AND IN MINING AND GEOLOGY**

**Electrical Engineering Methods, 3 lectures per week, course 1, H. J.
Ryan; 1 laboratory period per week, K. L. Curtis.**

**HARRIS J. RYAN,
Professor of Electrical Engineering.**

APPENDIX II

REPORTS OF STANDING COMMITTEES OF THE FACULTY

COMMITTEE ON ATHLETICS

The special report made by this committee for the year 1903-04 was of the nature of a general review of the policy of the committee from its inception. The present report may, therefore, deal with the condition of the several branches of athletics as pursued at present at the University.

In the matter of intercollegiate sports there has been a decided improvement in the spirit of courtesy within the last four years. The feeling that visiting teams are our guests, and as such are entitled to considerate treatment from the home teams and to hospitable reception from the University at large is becoming strong at Stanford and I hope traditional. The spirit in which the California team was received by both spectators and players in our last intercollegiate contest was one of fairness above and beyond what any member of this Committee has thus far witnessed in intercollegiate football matches in this country. In fact, this game—the first taking place on the stadium—was played by both sides in a spirit that most worthily dedicated the new athletic fields.

Coming to a more detailed consideration of the several sports represented at this University, it seems fitting, in view of the present widespread agitation in regard to college football, that the Committee should express its opinion on the game as now played. The Committee is of the opinion that the present game of football should be so changed as to meet the following objections:

1. The closed formations favored by the present rules make possible unfair and brutal playing which cannot be detected.
2. The game with its corps of attendants, and its complicated drill, has become a business rather than a sport.
3. The methods of play almost wholly exclude men of medium weight, however quick and agile they may be. This means that a large majority of students are shut out of the game altogether.
4. The game is in no sense a college sport: students do not form volunteer teams and play football for sport as they play baseball, though this was formerly the practice in this country and still is in England and Canada.

The formulation of rules to meet these objections does not lie within the functions of this committee. It is, however, idle to expect that any change save that of abolishment will meet all the criticisms—ignorant and expert—which have been directed against the game during the past decade. But the total abolishment of football this committee would regard

as a very serious loss and misfortune to college athletics. It is to be remembered on the one hand that any game will be played brutally by brutal players, and on the other that the elimination from football of all the factors which involve the possibility of danger would make it uninteresting to the players and meritless as a game — a statement which holds true of most manly sports.

The Committee has been glad to note an increase in the number as well as efficiency of those taking part in track and field sports; more than any other branch of college athletics the track and field contests open up *une carrière ouverte aux talents*. The training and discipline are beneficial and in general the sports as now conducted are in the most healthful and natural condition of any branch of university athletics.

The Committee considers that baseball stands on a distinctly lower level than any other college sport both as regards the spirit of amateurism and that of courtesy and fairness of play. The rules governing baseball are professional rules, elaborated by professional players, and the tricks and manners of the professional game are imitated and applauded in amateur games.

This Committee has as yet had very little difficulty with the question of the summer hotel ball-player, which has been such a menace to college baseball in the East. But in the town and commercial nines as they exist on this Coast there are in all probability factors of still greater danger to amateur baseball. Teams of this class play for gate receipts, which mainly go toward compensating the semi-professional and poorer professional players comprising the nucleus of these nines, and it is by teams of this sort that most of our varsity ball players are offered "inducements" of one kind or another to play during the summer vacation. The Committee has no objections to make to a student's meeting his expenses by professional or semi-professional ball-playing so long as he is not a candidate for a position on a varsity team; but we do not consider it fair that such a player should compete with strict amateurs for these positions, and we object most strongly to the introduction of "brush league" tricks and manners into University ball-playing.

Recognizing the evil of semi-professionalism, the representatives of the students at the last intercollegiate meeting for discussing the athletic agreement between California and Stanford passed a stringent clause which under the conditions existing on this Coast practically bars the baseball men from playing on any other than their college teams. How far this clause has been operative is not yet fully clear. That it was obeyed in most cases is evident, but that it was operative in all is still a matter of doubt.

Now the members of this Committee do not feel that they have either the time or inclination to go outside the University and hunt up evidence in these matters. Whenever evidence is brought before them of infringement of the amateur standards they will investigate the case as fully and as impartially as they are able. Their rule of action, however, as regards amateurism is and must be that every student is to be regarded as an amateur who has not been shown to be technically or virtually a "professional."

But should it appear that the rule to protect the amateur standard in

the University, passed by representatives of the students themselves, was not operative and could not be made so, that players on both sides by tacit consent connived at the infringement of the agreement, then the Committee see but little use in continuing intercollegiate contests in baseball.

Tennis here as elsewhere maintains its traditions as an excellent gentlemanly sport. The Committee would be glad to see more men taking part in the game. A like statement may be made in regard to rowing, which last year was admitted into the intercollegiate fold. In addition the rowing men are to be commended for the spirit they have shown in overcoming natural obstacles in the way of putting out creditable crews and of getting enjoyment from the sport. It is to be hoped that a sport which is so thoroughly recreative and which everywhere has maintained a high amateur standard will be recognized and become a fixture at this University.

The generous appropriation of land for athletic purposes should within the next two years bring about a very decided betterment in general in the condition of our sports and pastimes both among the women and the men. With only two grounds outside of tennis for college and university sports, it was inevitable that our games should be intensively rather than extensively pursued. But with a large number of tennis courts, with the basket-ball grounds, the hand-ball courts and track projected for the women's fields, and with the track, several baseball, football and lacrosse grounds laid out on the men's tract, there is no reason why the condition of athletics which the Committee considers most desirable should not be brought about—the condition, namely, that all students who are not physically incapacitated should every day take part in some form of college sport.

FRANK ANGELL,
Chairman.

COMMITTEE ON LITERARY CONTESTS

The Committee on Literary Contests for 1904-05 was composed of Professors Duniway, Alden, McLean, Elmore, Lewers.

It is the duty of this Committee to have general oversight of all public literary contests participated in by members of the student body, and to administer such literary contests as the University maintains officially.

In the former relation it has been the policy of the Committee to act in an advisory capacity, leaving to the representatives of the student body the responsibility of initiating and managing their events of this character. In 1904-05 the Committee's advice, given in an informal way, led to the abandoning of debates with the University of Washington—the main consideration being the undue expenditure of time and money involved. As a substitute the Committee sanctioned the inauguration of second-team debates with the University of Nevada, and the first of these contests was held in Reno.

In the matter of official contests, the policy to be followed in the conduct of the annual Carnot medal competition between students of the University of California and this University was discussed and procedure regulated. The President of the University designated Professors Duniway and Alden to act on the intercollegiate committee of arrangements for

the Carnot contest, which was held in the Assembly Hall of this University last February.

The foundation of the Bonnheim prize for ethical discussions imposed upon the Committee the duty of formulating regulations for the competition. These were duly published as follows:

I. The Bonnheim Dissertation.—The general subject for 1905 is "The Ethics of Monopolistic Control of Industry." Each candidate must deposit with the Registrar an essay upon this subject on or before November 6, 1905. The essays should not be signed, but should have some mark of identification and be accompanied by a sealed envelope containing the name of the author. They must be typewritten on thesis paper of regulation size. They should be preceded by an outline and a bibliography, and should have accurate references. No limit of length is prescribed, but a treatment not to exceed ten thousand words is recommended.

The judges will announce the names of the five candidates who present the best Bonnheim dissertations by November 20, 1905, and to as many of them as shall be deemed meritorious will be awarded premiums of \$20 each.

II. The Bonnheim Discussion.—The winners of the Bonnheim premiums for dissertations shall be qualified to engage in the discussion, which will be upon the same subject as the dissertations. This discussion will take place on the evening of the 8th of December, 1905. The Bonnheim prize of \$150 will be awarded to the speaker who in his discussion of the subject shows the clearest insight and makes the most effective presentation. Each speaker will be allowed twenty minutes.

C. A. DUNIWAY,
Chairman.

COMMITTEE ON PUBLIC HEALTH

The members of the Committee have been Professors Gilbert, Durand and Snow.

In addition to the necessary executive work of the year, a system of office records and sanitary maps has been developed which enables the Committee to refer readily to the health records of every student attending the University, and to keep fairly well informed as to current health conditions in the Community.

1. *Health Registration of New Students.*—A letter explanatory of University living conditions is sent to each prospective student during the summer, and a blank form concerning his health, recent exposure to communicable diseases, etc., is required to be returned properly filled out after consultation with his parents or family physician.

On arrival of the student at the University, these health records are completed by a brief medical examination. Facts of importance thus determined are made the basis of recommendations to the major professors, or to the general student adviser.

This method of direct communication with the student before he

leaves his home has resulted in many helpful letters from parents or family physicians.

Statistics.—Approximately 10 per cent. of the new students for 1904-05 are listed for general observation during the first semester, and for further correspondence with parents and major professors; of the remaining number—

20% have been noted as below the average.

40% have been noted as average.

30% have been noted as above the average.

For the past three years the new students have been asked: "Do you have reason to believe your University work and activities will be interfered with in any way by your health?"

In 1902-03, of 446 answers recorded, 71 were affirmative = 15.9%

In 1903-04, of 454 " " 132 " " = 26.8%

In 1904-05, of 532 " " 87 " " = 16.3%

These facts are given to show the view-point of the entering students. Of the 87 students in 1904-05 who expressed a doubt of their health being equal to the demands of University life, only 22 (6 men, 16 women) actually registered for less than thirteen hours for the first semester.

2. *Inspection of Boarding and Rooming Houses.*—The Committee has modified its past methods by requiring each student to present on registering a room-certificate signed by the house manager of an approved house.

Monthly statements are requested from the house managers reporting transfers, illness, and other facts relating to health conditions. It will be necessary to institute measures providing more frequent personal inspections in order to make this work effective.

STATISTICS

1. Number of private homes	133
2. Number of rooming houses	106
(a) General houses offering rooms without board.....	105
(b) University dormitory (accommodating 306 men)....	1
3. Number of rooming and boarding houses.....	93
(a) General (offering room only with board).....	70
(b) Fraternities (accommodating 389 students).....	22
(c) University dormitory (accommodating 106 women).	1
4. Number of houses offering housekeeping facilities.....	35
5. Number of hotels and general lodging houses.....	9
(accepting transient roomers).	
6. Number of restaurants.....	14
(including hotel dining-rooms).	
7. Number of private boarding houses.....	10
(including only those offering board for twenty or more regular boarders).	
8. Number of boarding clubs.....	15
(Cooperative student "Eating Clubs" comprising memberships of 15-25 students).	
Totals — 376 rooming houses and 39 boarding places.	

The list is not complete, as it is difficult to keep informed of transfers after the semester opens.

Students living in the community, comprising the Campus, Palo Alto, Mayfield and Menlo Park, number 1468. In addition 135 live in homes distant thirty to fifty miles along the lines of the railroad. A number of these move to the community to live during the winter months.

The living conditions among the 1600 students thus distributed present in the extremes all the features of over-crowding, poor sanitation, heating, ventilation, and improper food, found in the average tenement districts of a city, but the average living arrangements are satisfactory.

The boarding conditions of the community present many serious questions for consideration. Thus far the Committee has suggested no regulations. The boarding houses, eating clubs, restaurants, and hotels have been registered and inspected. A study of the "bills-of-fare" is being made for future report.

3. *Health Control of Athletics and Other Organized Student Activities.*—No material change in the past system of physical and medical examinations has been made during the year.

STATISTICS

I. Approved without restriction :

(A) Men —

1. For regular gymnasium work.....	350
2. For football.....	75
3. For other heavy athletics (rowing, track, etc.)....	100
4. For other forms of regular exercise	25

550

(B) Women —

1. For regular gymnasium work.....	60
2. For heavy athletics (basket-ball)	25
3. For other forms of regular exercise (tennis, hand- ball, gymnasium club).....	25

110

II. Approved subject to observation or special limitation :

(A) Men —

1. For gymnasium work	50
2. For football.....	25
3. For other heavy athletics.....	10
4. For other forms of exercise.....	25

110

(B) Women —

1. For regular and special gymnasium work	10
2. For basket-ball	10
3. For other forms of exercise	5

25

Total number of students entering without restriction into
some form of regular exercise during training season 660
Number entering under observation..... 135

795

These approximate figures indicate the various ways in which the students interest themselves in organized attention to the need for regular exercise. This leaves more than half the members of the student body unaccounted for. The majority of the students walk or ride wheels from six to ten miles in the ordinary routine of daily work, and there are comparatively few who do not average a reasonable minimum amount of physical exercise, if the elements of conscious play and mental relaxation can be introduced.

The systematic examination of entering students and of candidates for the "heavy athletic" teams is necessary to intelligent prevention of unwarrantable risks in carrying out either athletic or academic ambitions, but instances of ill health arising primarily from a too sedentary routine or an ill-advised attempt to make a place on an athletic team are rare in comparison with the number of ultimate student "break-downs" from sudden changes from one of these extremes to the other.

4. *Advisory Work.*—The Committee has continued the daily office hours for general medical advice, with additional appointments for such special examinations as become necessary in determining the diagnosis in any case. It has been the purpose of the Committee to combat the dangers of amateur self-diagnosis, and "patent medicine" prescribing, by making the work of practical benefit in an advisory way in all those minor indispositions and emergencies which ordinarily do not reach the physician's office, and in serious cases to bring together early in the course of an illness the practicing physicians and those students who would otherwise refuse to call in medical aid till the latest possible moment. The Guild Hospital has been of invaluable service in this work.

STATISTICS

The detailed medical statistics of the advisory work for 1904-05 show a total of approximately 1000 consultations: 600, Dr. Snow; 354, Dr. Edith H. Matzke. These consultations represent 400 individual students: 300 men, 100 women, asking advice concerning various stages of a very wide range of diseases. Many of these cases were referred to the practicing physicians for treatment.

The Committee attempts to get full reports regularly from the physicians concerning the diseases they are treating among the students. This is partially successful.

During the year requests have been made to the University instructors to send in reports of students who have been absent from classes on account of illness, or who impress the instructors as being in ill-health. The plan has met with very favorable support.

The chairman of this Committee is required to approve all petitions for leaves-of-absence, or reduction of hours on account of ill-health. So far as it is possible every petition thus approved is investigated carefully previous to action by the Committee on Registration. The following statistics based on these petitions are suggestive.

1904-05

Petitions granted for dropping work, or for leaves-of-absence on account of ill-health:

	FIRST SEMESTER	SECOND SEMESTER
First-year students.....	60 (47 men, 13 women);	24 (16 men, 8 women)
Second-year students.....	32 (15 men, 17 women);	15 (2 men, 13 women)
Third-year students.....	19 (4 men, 15 women);	17 (7 men, 10 women)
Fourth-year students.....	20 (8 men, 12 women);	6 (1 man, 5 women)

Freshmen, 84; Sophmores, 47; Juniors, 36; Seniors, 26. The general total, 193, is 12.3% of the student body for 1904-05. These may be compared with the health registration records of the individual petitioners to determine in what proportion of this 12.3% this action might have been foretold.

1. Students reducing hours on account of ill-health :

	1902-03	1903-04	1904-05
(a) Anticipated.....	68	63	41
(b) Unexpected.....	130	125	96
(c) Leaves-of-absence....	84	95	56
Totals.....	*282	283	193

2. Students reducing hours on account of outside work — this frequently means beginning of ill-health :

187	123	126
-----	-----	-----

Total number of students finding themselves attempting more they are physically able to do :

469	406	319
-----	-----	-----

In 1902-03, 226 students presented 282 petitions.

In 1903-04, 230 students presented 283 petitions.

In 1904-05, 155 students presented 193 petitions.

This correction would reduce the percentage for the entire student body to 10 per cent. for 1904-05.

The following distribution of these petitions granted to reduce hours is of interest :

	1904-05		
	Men	Women	Total
September.....	20	27	47
October.....	23	14	37
November.....	18	10	28
December.....	9	2	11
January.....	7	21	28
February.....	7	3	10
March.....	10	10	20
April.....	5	4	9
May.....	1	2	3
	100	93	193

Comparing men with the women, approximately 10% of the men and 18% of the women reduced hours on account of illness.

* These totals are for petitions, not for individual students. A number of students each year present a series of petitions which often tell their own stories of struggle, ending in leaves-of-absence.

5. *The Work of the Students' Guild.*—The members of this Committee serve as members of the Guild Board of Directors. The important work of the Board during the past year has been the development of adequate business methods. By a system of vouchers, numbered checks, and requisition forms, it is possible for the Ways and Means Committee to keep a complete record of all expenditures and receipts. Once a month an expert bookkeeper is employed to post up the permanent ledger and strike a trial balance. The current running expenses compare favorably with other and larger hospitals, but it has required the greatest possible economy to get through the year on account of the unexpected heavy expense of the diphtheria outbreak in September, and the outstanding accounts of students for whom the hospital provided antitoxin.

The routine work of the Board is carried on by three standing committees: on Cases, on Ways and Means, and on Management. By precedent one of the faculty members is appointed on each of these committees. The chairman of this committee is also chairman of the Guild Committee on Cases, and in that capacity serves as house-physician with responsibility for the nursing and technical care of the cases admitted. The Management Committee is responsible for the purchase of supplies and the general management of the plant. The Ways and Means Committee is responsible for the receipt and disbursement of funds and for the general financial policy of the Guild. Monthly reports from each committee are prepared and filed for permanent record.

During the year 136 patients were provided for, 128 of whom were regular student members. The range of diseases included all the ordinary diseases seen on this Coast. The daily average number of patients was four, and the average length of stay in hospital was six days. The students are beginning to realize the value of the hospital care as a preventive measure in many of the more serious minor illnesses.

Both as an educational and as a practical institution, the Guild is developing into an important factor among student body influences.

6. *Investigation of such Matters of Personal or Public Health as may be Presented to the Committee.*—Many minor matters for investigation have been referred to this Committee for investigation during this year. Only a few require mention.

The outbreak of diphtheria was due to personal infection, and was undoubtedly brought from several sources to the Campus and to Palo Alto during the summer. Strict measures of quarantine, the fortunate circumstance of being able to utilize the unfinished annex to the Guild Hospital, and the uniform use of antitoxin as a prophylactic measure enabled the health officers to control the situation and to prevent the University being closed.

A single case of typhoid developed in the community in November, and the Committee found on investigation that raw clams had been the probable cause. These clams came from the "beds" producing the material for the clam chowder sold in the evenings about the Campus.

A number of cases of less important communicable diseases were investigated, but no definite facts of general interest developed.

During the spring the data in the possession of the Palo Alto Board of

Health and of this Committee concerning the typhoid epidemic of 1903 was prepared for publication. A study of the sanitary conditions along the watershed areas tributary to the irrigation water supplies of the Campus was also made.

The transfer of the Hygiene Department to a permanent building and the provision of a convenient office and record room for the Committee's use has greatly facilitated the efficiency of the work.

W. F. SNOW,
Chairman.

APPENDIX III

REPORT OF THE REGISTRAR

The work of the Registrar's Office, aside from the care of records and printing of university documents, may be more conveniently grouped under the various committees with which the work of the office has most largely to deal.

In this connection, however, attention may be called to one feature of the work not thus included.

A large number of our graduates prepare themselves for teaching in the public schools of the State. For example, the number receiving the University's recommendation for the high school certificate, in accordance with the laws of California, in the class graduating in May, 1905, was 82. In seeking positions our graduates find it necessary to submit to school officers copies of records and letters and testimonials from the University. There is also constant request from high school principals and school officers for information relative to the qualifications of candidates for teaching positions. The University is also frequently asked to make specific recommendations for particular vacancies.

In replying to these requests no attempt is made to assume the functions of the ordinary Teachers' Agency, and it is no part of the purpose of the University to "push" candidates for positions. But our graduates are entitled to such commendatory statements as their records and the judgment of their instructors warrant, and school officers are entitled to as careful and discriminating an estimate of candidates' qualifications as the University can give. To do this work at all satisfactorily involves a large amount of labor in compiling data, and the correspondence, especially during the summer, is very heavy. The work has been fairly systematized and has been kept up as efficiently as our limited clerical force will permit. In judging the qualifications of those of our graduates who have been teaching a greater or less period, we are sensibly embarrassed by the difficulty of finding out just how and to what extent they have succeeded and where their strength and weakness lie. This difficulty will be obviated when some officer of the University, properly qualified for such duties, can, by actual visitation of schools, observe the work of these teachers and obtain first-hand information regarding them from persons competent to give it.

ADMISSION AND ADVANCED STANDING

The total number of students in attendance in 1904-05 was 1568. Of these 982 were students who had previously been in attendance, 586 were new students. As compared with 1903-04, this shows an increase of 2

old students and 71 new students. The distribution among major subjects compared with 1903-04 is as follows:

	1903-04	1904-05
Greek.....	14	10
Latin.....	70	62
German.....	74	88
Romanic Languages.....	43	43
English	246	226
Philosophy.....	5	3
Psychology.....	3	5
Education	23	21
History.....	98	93
Economics.....	79	90
Law.....	212	209
Drawing.....	23	19
Mathematics.....	31	33
Physics.....	9	10
Chemistry.....	77	93
Botany.....	20	18
Physiology.....	73	71
Zoology	27	39
Entomology	12	12
Geology	118	124
Civil Engineering.....	85	118
Mechanical Engineering.....	49	71
Electrical Engineering.....	94	110

The following statistics regarding the 586 new students will be of interest:

	Number Entering	Number Returning 1905-06	Dropped by Scholarship Committee
From Other Colleges and Universities:			
Graduates.....	40	7 (17.5%)	2 (5%)
With advanced standing	102	61 (59.8%)	4 (3.9%)
Without advanced standing.....	29	16 (55.1%)	6 (20.9%)
	<u>171</u>	<u>84</u>	<u>12</u>
From Preparatory Schools:			
On recommendation (wholly or mainly):			
In full undergraduate standing	147	286 (79.6%)	28 (7.8%)
In partial " "	209		
Wholly on examination:			
In full undergraduate standing	1		
In partial " "	2		
	<u>359</u>		
As Special Students:	56	29 (51.7%)	9 (16%)
	<u>586</u>	<u>399 (68.1%)</u>	<u>49 (8.3%)</u>

Of the 40 graduate students, 6 were admitted to candidacy for the Master's degree and 1 for the Doctor's degree; 3 were granted the Master's degree at the end of the year, and 6 the degree of Bachelor of Arts. Of the 40, 28 entered at the beginning of the year, and 21 remained through both semesters; 1 withdrew without making any record; 1 was suspended at the end of the first semester, and 1 at the end of the year. Of the twelve matriculating at the beginning of the second semester, 3 withdrew without making any record. Of these 40, 7 have returned to the University for the year 1905-06.

Of the 102 coming from other universities with advanced standing (not graduates), 7 were given senior standing and received the A. B. degree at the end of the year.

Of the 29 returning special students, 4 had attained regular undergraduate standing.

ADMISSION AND ADVANCED STANDING

During the year 1904-05, the Committee on Admission and Advanced Standing held 22 formal meetings. The routine business of examining credentials for admission on recommendation and to advanced standing is attended to by the Registrar. The meetings of the committee were, therefore, concerned with the applications for admission in special standing, with irregular credentials for regular and advanced standing, and with the adjustment of credentials for advanced credit, including extra entrance credits, special courses, summer work, and all work completed before matriculation. Some time also was spent in consideration of questions of general policy, and numerous recommendations were made to the Executive Committee.

COMMITTEE ON REGISTRATION

The Committee on Registration has met weekly during the college year to consider petitions from students having to do with matters under its jurisdiction. The following statistics summarize the committee's action for 1904-05:

	1st Semester	2d Semester
Total number of petitions acted upon....	1248	805
To change registration (<i>i. e.</i> , dropping subjects or taking up new subjects, or both).....	951	536
To change major subject.....	60	43
To register for fewer than 13 hours....	140	106
To register for more than 18 hours....	7	4
For leave of absence ..	60	67
Miscellaneous.....	30	49

Fifteen hours (units) constitute a normal semester's work, but students are ordinarily permitted to register for as few as thirteen or as many as eighteen without petition. The following will indicate the actual registration for 1904-05:

Number of Hours (units)		Number of Students	
		1st Semester	2d Semester
For	1 hour.....	0	1
2	.....	3	4
3	.....	3	2
4	.....	8	8
5	.....	4	5
6	.....	6	8
7	..... as long as they can	4	8
8	.....	3	8
9	.....	20	21
10	.....	27	29
11	.....	31	30
12	.....	54	52
13	.....	178	147
14	.....	213	190
15	.....	448	425
16	.....	251	187
17	.....	95	142
18	.....	74	103
19	.....	0	1
Above 19	.....	0	0

In the University of Utopia the function of the Committee on Registration, if it has any, will be merely that of record keeping. There will be no admission requirements and no graduation. Students will come to the University because of the advantages offered, and will stay as long as they can afford to or as long as they can profit by the instruction offered. Any courses or work actually completed may be made a matter of record. How much work is completed in a given time will depend upon the ability, industry, and success of the individual student. Absence from class work, tardiness, listlessness, neglect, will bring their own punishment to the individual, just as exceptional quality or amount of work will be unerringly credited to the individual. The University may observe, but it will have no rules about absence, late registration, or minimum or maximum number of hours.

It is sometimes reasoned that a system admirable for Utopia might also be applicable at Stanford; and the Stanford regulations most often questioned are those which limit the number of hours for which a student may register (or obtain credit) in a given semester, and which restrict the amount of credit for private or irregular study in absence from the University. The principle is often stated in this form: that a student should be credited with whatever work he accomplished, wherever or whenever it is done—the statement implying a wide divergence in practice between Utopia and Stanford. As a matter of fact, such work is credited at Stanford in exactly the same sense as it is at Utopia; that is, whatever benefit there is in it inures to the student. But at Stanford there is also involved the technical question of graduation and the conferring of a Bachelor's degree. Since the main requirement for graduation is the completion of a certain number of hours (or units) of credit, there is constant tempta-

tion for students to prefer courses where credits are easily earned, to undertake more work than they can well accomplish, and to offer irregular and unsupervised work towards fulfilling such requirements,—in this latter case, there being no exact way of measuring such work either at Utopia or Stanford. In making general regulations to protect both the University and the student, the Committee is bound to recognize that the degree is based upon the conventional four years' college course, that its requirements are, and to a certain extent must be, arbitrary, and that under this arrangement 15 unit hours constitute the normal semester's work. Granted that the exceptional student may accomplish more than the normal semester's work, there is no sufficient data available to enable committees to determine how much work such exceptional students may wisely undertake. If no credit value were attached or involved, regulation would be unnecessary; but if all are to be allowed the experiment of seeing how much they can do, and the event is to determine the credit, it is evident that many students will be tempted to undertake more work than they can accomplish, with resulting detriment to all their work, and not infrequently very serious physical consequences. If the University had no responsibility for the health of its students, it must still recognize that so long as human nature remains what it is there will be an inevitable tendency on the part of instructors to be lenient toward the student who is overloaded and desperately in need of extra hours in order to graduate at a given time. If any considerable number of students should find it possible to carry successfully as many as twenty hours per semester, it would mean that fifteen hours is no longer the normal semester's work. It is obvious, therefore, that somewhere an arbitrary line must be drawn; and it is believed that the standards of the University will be best maintained, and without injustice to any student, by giving as wide general latitude as possible, and beyond this by maintaining inflexibly such arbitrary rules as are approved by experience. Formal graduation, depending upon the fulfillment of arbitrary requirements, should simply follow such fulfillment. But it is no part of the business of the University to bend these requirements to fit particular exigencies. Beyond the limits imposed by the University, students of superabundant energy or exceptional ability may well be encouraged to do such additional work as time and strength permit, for the love of it and the profit of it, without reference to credit values.

It is interesting to note that Cornell University, after long trial of a system which in exceptional cases permitted students to take more than eighteen hours per semester, has, during 1904-05, adopted a regulation by which no student may be credited with more than eighteen hours for any semester. More than this, the requirement for graduation, while remaining fixed at 120 hours as before, is also defined as eight semesters' work. No student may reduce the number of semesters by averaging more than the normal semester's work (15 hours). Eighteen hours taken in one semester will permit the student to take only twelve, if he so desires, in some other semester; but eighteen hours taken for seven consecutive semesters, although giving six more than the required number of hours for graduation, would not, under the Cornell regulation, permit of such graduation. An additional semester (the eighth) of not less than twelve hours would still be required.

There are two ways in which Cornell permits a reduction of the number of semesters. Students may offer extra entrance credits to the extent of not more than twelve hours of University credit; and if twelve hours are thus offered, these may be taken, under the semester definition, as the equivalent of one semester's residence. Students may receive credit for summer work to the extent of not more than twelve hours (and no summer work is to be credited unless at least two summers' work is taken); and these twelve hours of summer work may also count as one semester's residence. Of course a student obtaining twenty-four hours' credit in these two ways would have to make up the six hours lacking during his six semesters' residence, but by doing so he would be able to graduate with the six semesters' actual residence. This legislation is noted as showing the radical measures which one university has found it necessary to adopt in order to counteract the mania for credits. It is not believed that such rigid restriction is demanded at Stanford, so long as our present regulations are strictly enforced, and so long as irregular and unsupervised work is refused credit toward graduation.

SCHEDULE AND EXAMINATIONS

The Committee on Schedule and Examinations has had under consideration two important questions: First, as to the desirability of changing the calendar so as to place the beginning of the academic year somewhere near the first of October, thus conforming to the custom of eastern universities. Second, as to the desirability of setting aside a regular examination period at the end of each semester. The possibility of a better arrangement of the schedule with a view to avoiding certain conflicts has also been under consideration. On none of these points has the committee yet formulated its conclusions, but a definite report may be expected during the year 1905-06.

GRADUATION

The work of the Committee on Graduation has been confined to the routine matters (1) of passing upon applications for admission to candidacy for advanced degrees, so far as determining whether the previous work of the candidate is the equivalent of our Bachelor's degree, and (2) formally recommending to the Council those candidates who have completed all university requirements for the baccalaureate degree. An investigation of the conditions on which the degree is granted at Stanford having been entrusted to a sub-committee of the Executive Committee, no recommendations have been made by the Committee on Graduation during the year.

STATISTICS OF GRADUATION

The total number of degrees conferred in 1904-05 was 253, as against 221 in 1903-04, distributed as follows:

	DOCTOR OF PHILOSOPHY	1903-04	1904-05
Botany.....		1	1
	ENGINEERS		
Chemical Engineering.....		1	
Geology and Mining.....		1	
Mechanical Engineering.....			1
		<hr/> 2	<hr/> 1

MASTERS OF ARTS		19 3-04	1904-05
Greek.....		1	1
Latin.....			2
Germanic Languages.....		1	4
Romanic Languages.....			1
English.....		1	2
Psychology.....			2
Education.....		2	
History.....		3	1
Economics and Social Science.....			1
Mathematics.....		1	
Chemistry.....		3	2
Botany.....		2	2
Zoology.....			3
Entomology and Bionomics.....		1	1
Geology.....			1
		15	23
BACHELORS OF LAWS			
Law.....		6	8
BACHELORS OF ARTS			
Greek.....		4	4
Latin.....		17	11
Germanic Languages.....		8	13
Romanic Languages.....		8	5
English.....		38	28
Philosophy.....		1	1
Psychology.....		1	
Education.....		4	7
History.....		21	22
Economics and Social Science.....		8	11
Law.....		25	26
Drawing.....		2	3
Mathematics.....		6	10
Physics.....		1	2
Chemistry.....		10	10
Botany.....		4	3
Physiology and Histology.....		11	10
Zoology.....		4	3
Entomology and Bionomics.....			1
Geology and Mining.....		10	13
Civil Engineering.....		11	11
Mechanical Engineering.....		1	10
Electrical Engineering.....		2	16
		197	220

O. L. ELLIOTT,
Registrar.

APPENDIX IV

REPORT OF THE LIBRARIAN

GROWTH OF THE LIBRARY

There have been added to the Library during the year 4425 volumes, making a total at the end of the year of 85,932 volumes. The number of accessions for the two previous years were 6506 and 4956 volumes. The following table will show the sources from which these volumes have come:

No. of volumes reported July 31, 1904.....	81,507	
Regular accessions..... A1-56450, 60001-73896		
Law accessions..... A56451-60000, 75001-75173		
Railway library..... H1-6486		
Biological library..... HB1-952		
No. of volumes purchased during the year.....	1,717	
Law library.....	119	
Railway library....	61	
General library....	1537	
No. of volumes received by gift	1,617	
Various sources....	1118	
Exchange	99	
U. S. Government.	400	
No. of volumes from bindery.....	1,091	4,425
		<u>85,932</u>

The number of books (1537) purchased for the general library is unusually small, and includes in the main only such as the various departments consider necessary for their immediate work. It represents no single item of extraordinary value.

The 1617 volumes received by gift and exchange include two important collections:

The David S. Jordan Library of Zoology, presented to the University by Dr. Jordan in 1903-04, but not being accessioned until the dates covered by this report, was not previously mentioned; and

The Library of Egyptology, 216 volumes and 80 pamphlets, presented by Timothy Hopkins.

Other gifts worthy of special mention were received from Thomas Welton Stanford, Melbourne, Australia, and J. McMahon, San Jose.

In addition to these bound volumes there were received some 4563 pamphlets, annuals, reports and the like, from numerous institutions and individuals. Of this number 1171 were received from parties to whom we regularly send our own publications in exchange. In this list the most important additions were:

Carnegie Institution, Washington: Publications.

Harvard University — Jefferson Physical Laboratory: Contributions.

University of Chicago: Decennial Publications.

The number of serials regularly received was 928, of which 640 were by purchase, 196 by gift, and 92 by exchange.

USE OF THE LIBRARY

The library has been open every day during the year except Sunday and University holidays. During the semester sessions the hours have been from 8 a.m. to 10 p.m., closing on Saturday at 3:30 p.m. During the summer vacation the library was open from 9 a.m. to 12 m. and from 2 to 4 p.m.

The number of books handed over the delivery desk in the reading room is the largest on record. The total for the year is 157,981, distributed according to the following monthly record:

	Reading-room use	Taken out by Students	Taken out by Faculty	1904-05 Total	1903-04 Total
August.....	148	163	305	616	1,156
September.....	15,866	665	431	16,962	15,894
October	19,650	920	515	21,085	21,300
November.....	19,204	1,669	391	21,264	16,194
December	13,720	984	355	15,059	12,896
January.....	12,066	856	474	13,396	14,200
February.....	17,951	1,409	417	19,777	18,656
March	18,345	2,734	638	21,717	14,598
April.....	13,454	1,501	259	15,214	16,368
May	10,781	985	369	12,135	5,655
June.....	77	158	240	475	561
July.....	36	55	190	281	424
Totals	141,298	12,099	4,584	157,981	137,902

These figures do not represent the entire number of books used in the library, as no record is made of those consulted in the reference room, in the Hopkins Railway Library, or in other rooms where special collections are kept. In these rooms students have direct access to the shelves.

Permits to the stacks of the main library have been issued as heretofore to students doing advanced or special work, upon recommendation of professors.

During the year we had occasion to borrow fifty volumes from the following libraries:

California State Library.....	2
Chicago Public Library.....	11
Cornell University.....	1
Mechanics Institute, San Francisco	3
Mercantile Library, San Francisco	5
Newberry Library, Chicago	1
San Francisco Public Library	12
University of California.....	14
U. S. Library of Congress	1
	<hr/> 50

LIBRARY STAFF

The personnel of the library force has been distributed in the following way:

General Administration:	M. G. Dodge, Associate Librarian. H. W. Rolfe, Stenographer.
Order Department:	M. G. Dodge, Supervisor. M. E. Haven, Assistant.
Accession Department:	M. E. Haven, Supervisor. I. M. Peterson, Assistant.
Gifts and Exchanges:	A. N. Hays, Supervisor (acting).
Classification:	A. N. Hays, Classifier.
Catalogue:	F. Hughes, Head Cataloguer. H. Sutliff, Cataloguer. E. Hadden, Cataloguer. A. G. Hall, Assistant. P. E. Miller, Assistant. J. E. Stewart, Assistant.
Serials and Binding:	H. Miles, Supervisor. H. W. Rolfe, Assistant.
Reference and Bibliography:	L. P. Green, Reference Librarian. M. E. Haven, in charge Stanfordiniana.
Shelf and Loan Departments:	B. H. Thompson, Supervisor. G. G. Altnow, Assistant. P. C. Edwards, Assistant. C. A. Lantz, Assistant. M. I. Crosier, Assistant. F. R. Lanagan, Assistant. B. C. Dey, Gilder.
U. S. Documents:	L. P. Green, Supervisor (acting).

CATALOGUING

The total number of books catalogued during the year was 7,752. This includes all the current accessions. In addition, the attempt has been made to bring up as much of the back work as possible. A good beginning has been made with the Hildebrand Library. Of the books shelved in the main stacks there still remain, standing in the old order, many books in science, useful arts, fine arts, all of education, and the Australian collection.

Some 25,000 cards were written and filed in the catalogue. Of this number 3350 were printed cards purchased from the Library of Congress.

MELVIN G. DODGE,
Associate Librarian.

APPENDIX V

REPORT OF CHAPLAIN OF MEMORIAL CHURCH

The work of the Memorial Church may be divided into three departments: (a) public services, (b) instruction, (c) pastoral work among students.

(a) Public Services.—Services for public worship are held on Sunday at 11 a.m. and 4 p.m. On the first Sunday of each month there is a celebration of the Lord's Supper after the morning service, to which all persons are cordially invited, and a musical service at 8 p.m. During 1904, and part of 1905, the Chaplain conducted these services and preached. Since September, 1905, acting under the authority of the Board of Trustees, the Chaplain has invited special preachers from various denominations on alternate Sundays. The following is the list of special preachers for the year ending December, 1905.

Presbyterian :	Rev. W. K. Guthrie, of San Francisco.
Congregational :	Rev. R. C. Brooks, of Oakland.
	Rev. W. H. Day, Jr., of Los Angeles.
Unitarian :	Rev. E. M. Wilbur, of Oakland.
	Rev. L. C. Cornish, of Hingham, Mass.
	Rev. B. E. Howard, of Los Angeles.
Episcopal :	Bishop Nichols, of San Francisco.
	Bishop Spaulding, of Colorado.
Baptist :	Rev. R. J. Burdette, of Los Angeles.
	Dr. Moulton, of Chicago.
Methodist :	Rev. C. K. Jenness, of Berkeley.
	Rev. R. C. McIntyre, of Los Angeles.
Hebrew :	Rabbi Nieto.

In the matter of Sunday services, the one development during the year has been the inauguration of a service on the first Sunday evening of the month, for the performance of the great oratorios. To Dr. Blodgett, the organist and choirmaster, belongs the credit for the satisfactory condition of the student choir and its creditable performance of the musical portion of the services. On each week day there is an organ recital in the afternoon, and on Thursdays a vesper service and address at 4:30. The services are uniformly well attended by the students.

(b) Instruction.—In addition to preaching, the Chaplain of the Memorial Church gives a course of lectures in the department of Biblical Literature and History on the "Life and Teaching of Christ," the class numbering, on an average, seventy-five. Instruction is given in religion and morals to individual students, and the study of the Bible is fostered. During this term a Bible class is to be organized, and special lectures given by

Professor Moulton and Dean Hodges. In this connection mention may be made of the Memorial Church Library. For the present it is the endeavor to build up a departmental library of books on Biblical literature and history, and on the history and philosophy of religion, and its relation to science.

(c) Pastoral Work Among Students.—At the beginning of each semester a personal letter is addressed to each incoming student, welcoming him to the services of the Church and offering him help should it be needed. The Chaplain visits students in their lodgings and regularly attends the students' hospital. Office hours are kept daily, except Monday, from 10 to 12, these hours being devoted to consultation with students. The Church aims, by services of public worship, through sermons, addresses, lectures, and instruction, by pastoral care and oversight, to foster the moral and spiritual life of the students of the University and to stimulate their interest in religion and morals.

D. CHARLES GARDNER,
Chaplain.

APPENDIX VI

REPORT OF THE CURATOR OF THE UNIVERSITY MUSEUM

In addition to the installation of the collections as they arrived during the year, much of the time of the Museum staff was spent in treating various fabrics, paintings, bronzes, etc., in an effort to preserve them from decay and corrosion. At the present time the majority of the paintings are in very fair condition, especially considering the rapid and extreme changes of temperature they are subjected to during the winter months. The fabrics have apparently been entirely freed of moths. Mildew occasionally appears upon some of the leather goods, but is kept under control by the formaldehyde treatment. Through the series of investigations carried on here during the past four years, the present method of treating material generally, aside from actual poisoning, is deemed far superior and much more economical than any heretofore tried. The bronzes seem to present new difficulties each season. The ammonia-paraffine method has proven most beneficial.

The public attendance at the Museum has more than doubled, including a majority of the prominent people visiting the Coast. Up to the first of March the Museum was very generally used by the various public schools of this and adjoining counties for the purpose of instruction. Nearly every school within a radius of twenty-five miles has visited it from one to three times. The summer session of the San Jose State Normal made it a special feature of their trip here.

During the month of March the Museum remained closed. Since that date all exhibition material sent to the Museum has been temporarily stored.

The Museum contains, approximately, about 28,000 articles, divided among the various departments as follows:

The Leland Stanford Junior Room, about 2,500 pieces, the greater part being curios and art treasures gathered by him prior to his death in 1884. They are all in a rather crowded condition.

The Memorial Room, including the ceramics, family dishes, plate and historical records of the Stanford-Lathrop families, mementos of the Central Pacific Railroad and of the professional life of Senator Stanford, laces, embroideries, shawls and Worth costumes, antique jewelry, etc., totals nearly 2,200 pieces.

The Cyprian Collection gathered by Gen. Di Çesnola during his residence on the Island of Cyprus, numbers 5,000 specimens.

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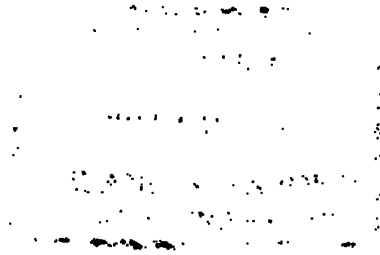


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1906

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NO. 14



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TABLE OF CONTENTS

PRESIDENT'S REPORT.

	PAGE
The Earthquake	5
Damage to Buildings	6
Need of Earthquake Buildings	6
Work of Restoration	7
Increase of Salaries	7
Attendance of Students	7
Commencement and Degrees	8
Rugby Football.....	8
Limitation of Men Students	8
Out-of-Door Exercise	9
Faculty Changes	9
Seaside Laboratory	13
Faculty Publications	14
Major-Subject System	19

APPENDICES.

I. Departmental Reports	20
Greek	20
Latin	20-21
German	21-22
Romanic Languages	23
English	23-25
Psychology	25
Education	25-26
History	26-27
Economics and Social Science	28
Law	28-29
Drawing	29-30
Mathematics	30-31
Applied Mathematics	31-32
Physics	32-33
Chemistry	33-35
General Botany	35-36
Systematic Botany	37
Physiology and Histology	37-38
Hygiene	38-39
Zoology	39-40
Entomology and Bionomics	40-41
Geology and Mining	41-44
Civil Engineering	44
Mechanical Engineering	44-45
Electrical Engineering	46

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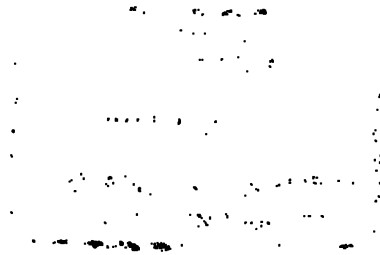


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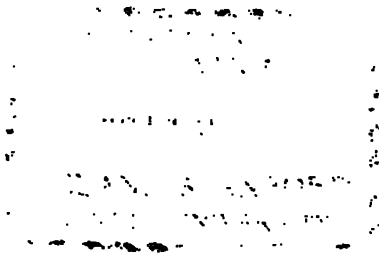


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APPENDIX VI

REPORT OF THE CURATOR OF THE UNIVERSITY MUSEUM

In addition to the installation of the collections as they arrived during the year, much of the time of the Museum staff was spent in treating various fabrics, paintings, bronzes, etc., in an effort to preserve them from decay and corrosion. At the present time the majority of the paintings are in very fair condition, especially considering the rapid and extreme changes of temperature they are subjected to during the winter months. The fabrics have apparently been entirely freed of moths. Mildew occasionally appears upon some of the leather goods, but is kept under control by the formaldehyde treatment. Through the series of investigations carried on here during the past four years, the present method of treating material generally, aside from actual poisoning, is deemed far superior and much more economical than any heretofore tried. The bronzes seem to present new difficulties each season. The ammonia-paraffine method has proven most beneficial.

The public attendance at the Museum has more than doubled, including a majority of the prominent people visiting the Coast. Up to the first of March the Museum was very generally used by the various public schools of this and adjoining counties for the purpose of instruction. Nearly every school within a radius of twenty-five miles has visited it from one to three times. The summer session of the San Jose State Normal made it a special feature of their trip here.

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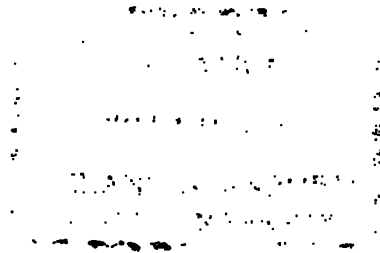


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In French, Instructor Stanley Smith has received leave of absence for study in Europe. His place is being filled by the appointment of Instructor Homer Price Earle, a graduate of Stanford, 1904, and subsequently a student at Johns Hopkins. M. Pierre Comert, an instructor in the University of Paris, has been appointed Instructor in French, his work to begin in 1907.

In English, Instructor Edward Kirby Putnam has tendered his resignation to accept the management of the Academy of Sciences at Davenport, Iowa, an institution founded by his mother and brothers. In his place, Dr. William Dinsmore Briggs has been made Assistant Professor of English. Dr. Briggs is a graduate of Stanford, 1896, and holds the degree of Ph. D. from Harvard. He has for some years been instructor in English at Western Reserve University. Mr. John Kester Bonnell, instructor in English, has received a further leave of absence, for study in Europe, his place being filled by Instructor Frederick A. Manchester, a graduate of the University of Wisconsin, and recently instructor in English in that institution. For the current year, Professor Anderson is in Europe, on sabbatical leave of absence. Associate Professor Newcomer has been made executive head of the department, and has been promoted to a professorship. Instructor Henry David Gray has been promoted to an Assistant Professorship.

In Philosophy, the chair, filled temporarily this year by Professor William James, of Harvard University, is left vacant for the year 1906-07.

In Psychology, Assistant Professor Lillien Jane Martin is absent in Europe on sabbatical leave.

In History, Professor Max Farrand has returned from sabbatical leave. Associate Professor Ephraim Douglass Adams has been promoted to the rank of professor, and Instructor Payson Jackson Treat, has been granted a year's absence to study present conditions in Asia.

In Economics, Dr. Allyn Abbott Young, of the University of Wisconsin, has been appointed Associate Professor of Econ-

omics and executive head of the department, the position formerly held by Dr. Simon James McLean, now professor in the University of Toronto.

Dr. Young is a graduate of the University of Hiram College, holding the degree of Ph. D. from Wisconsin, 1902. He has held the position of Assistant Professor of Economics at Western Reserve and Dartmouth, and that of Political Economy at Wisconsin.

Dr. Thorstein B. Veblen, of the University of Chicago, has also been appointed Associate Professor of Economics. Dr. Veblen is a graduate of Carleton College, holding the degree of Ph. D. from Yale. He has held for some years an Assistant Professorship of Political Economy in the University of Chicago. He is well known as a writer on economic subjects.

Dr. Albert Conser Whitaker, recently promoted to an Associate Professorship, is granted leave of absence for the year. He is to give a course of lectures on Economics at Columbia University.

In Education, Associate Professor Cubberley has been advanced to a professorship and the executive headship of the department.

In Law, Professor Nathan Abbott is absent on sabbatical leave, Associate Professor Charles Henry Huberich acting as executive in his absence. Professor Abbott gives a course of lectures on Property in the Law School of Columbia University. Instructor Charles Andrews Huston has been added to the staff of this department. Mr. Huston comes from the University of Chicago, where he has held an instructorship in English, previous to completing his course in Law. He holds the degree of A. B. from Chicago University, 1902. Instructor Arthur Mason Cathcart has been made Assistant Professor. In the absence of Professor Abbott, Associate Professor George Henry Boke, of the University of California, gives the course in Property Law.

In Drawing, Assistant Professor George Loftus Noyes has tendered his resignation to accept a position in the Boston Art School. His place is temporarily filled by the appointment of Miss Florence Lundborg.

In Mathematics, Associate Professor George Abram Miller has tendered his resignation to accept a chair in the University of Illinois. His place is filled by the return of Assistant Pro-

fessor Blichfeldt from sabbatical absence in Germany. Dr. Blichfeldt has been promoted to the rank of Associate Professor.

In Applied Mathematics, the staff has been increased by the appointment of William Orville Mendenhall as instructor. Mr. Mendenhall is a graduate of Haverford College.

In Physics, Associate Professor Stearns is still unable from illness to take up his work. Meanwhile he is placed on the pension roll of the Carnegie Foundation. His place is filled temporarily by the help of graduate students.

In Chemistry, Associate Professor Edward Curtis Franklin has been promoted to the rank of Professor. Associate Professor Stewart W. Young is absent on sabbatical leave, and Instructor Alvin J. Cox is absent on leave as government chemist in the Philippines. Meanwhile William E. Burke and William H. Sloan have been appointed Acting Instructors in Chemistry to carry on their work.

In Botany, Professor Douglas Houghton Campbell has returned from sabbatical leave. Instructor Anstruther Abercrombie Lawson has been promoted to the rank of Assistant Professor, with leave of absence for the year to study in Germany. Mr. Harry B. Humphrey, a graduate student, is acting as instructor for the year.

In Systematic Botany, Professor William Russell Dudley is absent for the year on sabbatical leave, Mr. LeRoy Abrams, of the Smithsonian Institution, a graduate of Stanford and a former instructor, being Acting Assistant Professor in his absence.

In Physiology, Instructor John Francis Cowan is absent for purposes of study, his place being temporarily filled by advanced students.

In Hygiene, Assistant Professor Thomas A. Storey has tendered his resignation to accept the chair of Physical Training in the University of the City of New York. Mr. Royce R. Long, of Vanderbilt University, formerly Gymnasium Assistant at Stanford, takes the place of Dr. Storey as Instructor and Acting Director of the Encina Gymnasium. Halbert W. Chapel, Instructor in Hygiene, is absent for the year for purposes of study.

In Zoology, Associate Professor Harold Heath returns from sabbatical absence. Professor Charles H. Gilbert has charge of

the investigations of the fisheries of Japan, with the aid of the Steamer Albatross, under the auspices of the United States Bureau of Fisheries. Associated with him in this work are Assistant Professor John O. Snyder and two students, Charles Victor Burke and Michitaro Sindo. Dr. Heath was with the same expedition during the summer months.

In Entomology, Mr. Rennie W. Doane, a graduate of Stanford, late Assistant Professor of Zoology and Entomology in Washington State College, has been made instructor.

In Geology, Associate Professor John F. Newsom has returned from sabbatical absence.

In Civil Engineering, Associate Professor John C. L. Fish has been granted a second year of absence. Mr. Hubert H. Hall and Mr. Lester L. Carter, graduates of Stanford, have been appointed instructors.

In Mechanical Engineering, the staff has been increased by the appointment of Lawrence Edminster Cutter, a graduate of Stanford University, as instructor. Mr. Edward J. Stanley, Foreman in Woodworking, absent on leave for the past year, has returned to the University. Instructor Samuel James Dennis has tendered his resignation to engage in engineering under the Government. Assistant Professor Andrew A. Browne, who had been absent on sick leave for some time, died at Tempe, Arizona, on May 10, 1906. His widow has been granted a pension by the Carnegie Foundation.

In Electrical Engineering, Instructor Kenneth Livermore Curtis, has been promoted to an Assistant Professorship.

The summer session of the Seaside Laboratory was continued, Associate Professor George C. Price having charge of the work. Fifty-seven students and investigators were in attendance, and the work of the summer was regarded as very successful. Among the investigators to whom the Laboratory granted facilities for research was Professor Charles Wilson Greene, of the University of Missouri, who was engaged, in the interest of the United States Bureau of Fisheries, in the study of the physiological and chemical changes in the spawning salmon.

The following list of publications by professors and instructors in the University may be here noted as showing the literary

Faculty and scientific activity during the year of mem-
Publications bers of the faculty:

- NATHAN ABBOTT**: Ed. Brief Making and the Use of Law Books by Wm. M. Lile, Henry S. Redfield, Eugene Wambaugh, Alfred F. Mason, and James E. Wheeler. St. Paul; West, 1906. Address as President of Association of American Law Schools. *Report, American Bar Association*, 1905.
- LE ROY ABRAMS**: Studies on the Flora of Southern California, *Torrey Botanical Club Bulletin*, 32, 1905. Theory of isolation as applied to plants, *Science*, December 22, 1905. Two new species of peutotemon, *Torrey Botanical Club Bulletin*, 33, 1905.
- EPHRAIM DOUGLASS ADAMS**: England's later years, *Dial*, December 16, 1905. Life of Canning by H. W. V. Temperly, (review); *American Historical Review*, January, 1906. Lord Randolph Churchill, *Dial*, June 16, 1906. Men and movements of modern England, *Dial*, August 10, 1905. A new history of England, *Dial*, July 16, 1905. New views of the great Spanish Armada, *Dial*, September 16, 1905. Der Krieg des Jahres 1799 und die Zweite Koalition, von Hermann Huffer (review), *American Historical Review*, January, 1906. History of American Diplomacy, vol. I, David J. Hill, (review), *American Academy of Political and Social Science Annals*, January, 1906.
- RAYMOND MACDONALD ALDEN**: The Golden Key, (Phi Beta Kappa poem), *Stanford Sequoia*, October, 1905. Plymouth Beach, (poem), *New England Magazine*, January, 1906. Typical Commencement at Leland Stanford Junior University, *Reader's Magazine*, August, 1905.
- MELVILLE BEST ANDERSON**: American literature in British periodicals, *Dial*, April, 1906.
- JOHN CASPAR BRANNER**: From school to college, III, Stanford University Press, 1905. Geology of the diamond and carbonado washings of Bahia, Brazil, *Economic Geology*, November-December, 1905. Omission of titles of addresses on scientific subjects, *Nature*, September 28, 1905. University training of engineers in economic geology, *Economic Geology*, December-January, 1906.
- CHARLES REYNOLD BROWN**: The call of duty, University of California, *Chronicle*, September, 1905.
- LUTHER BURBANK**: Cultivate children like flowers, *Elementary School Teacher*, May, 1906. Large profit in growing walnuts, *For California*, April, 1906. The training of the human plant, *Century*, May, 1906.
- DOUGLAS HOUGHTON CAMPBELL**: Structure and development of mosses and ferns (Archegoniatae), Ed. 2, N. Y. *Macmillan*, 1905. Studies in the araceae, III, plates, *Annals of Botany*, 19, 1905.
- WILLIAM EDMUND BURKE**: (With Stewart Woodford Young) Further studies on the hydrates of sodium thiosulphates; *Journal of the American Chemical Society*, March, 1906.
- ARTHUR BRIDGMAN CLARK**: High School drawing, *School Arts Book*, March, 1906.
- WILLIAM ALPHA COOPER**: Translation, Albert Bielowchowsky: Life of Goethe, Vol. I, Putnam, N. Y., 1905. (with Professors Schilling, Demeter and Buehner) A four year's course in German for secondary schools, S. F., 1905.
- IRA B. CROSS**: A primer of direct legislation, *Trenton Arena*, 1906.
- ELLWOOD P. CUBBERLEY**: Report of the committee on tenure of office of teachers, laws relating to the same, and how tenure may be improved, *Western Journal of Education*, March, 1906. Report on supervision of rural schools, *Western Journal of Education*, March, 1906. School

- funds and their apportionment, *Columbia University Publications*, 1905. Plan for the supervision of rural schools in California, *California School Journal*, April 16, 1906.
- MELVIN GILBERT DODGE: California as a place of residence for the scholar, *Library Journal*, October, 1905.
- WILLIAM RUSSELL DUDLEY: Forestry notes, *Sierra Club Bulletin*, 1905-06.
- CLYDE AUGUSTUS DUNIWAY: The development of freedom of the press in Massachusetts, N. Y., 1906. Report of second annual meeting of Pacific Coast branch of American Historical Association, *American Historical Annual Report*, 1905. Slavery in California after 1848, *American Historical Association Annual Report*, 1905.
- WILLIAM FREDERICK DURAND: Superheated Steam, *Engineering Record*, July 28, 1906. Commercial factors in power plant problems, *ibid.*, August 4, 1906. Commercial factors in power plant design, *ibid.*, August 11, 1906. Experimental researches on the performance of the screw propeller, *Transactions, Society of Naval Architects and Marine Engineers*, February, 1906. Motor boats, *Marine Engineering*, August-December, 1905, January-July, 1906.
- JEFFERSON ELMORE: Aristophanes' Peace, 990; *Classical Review*, December, 1905. Note on Horace Satire 1, 6, 126, *Classical Review*, November, 1905.
- HENRY RUSHTON FAIRCLOUGH: The Helen episode in Vergil's Aeneid, *Classical Philology*, July, 1906.
- JOHN CHARLES LOUNSBURY FISH: Typhoid fever epidemic at Palo Alto, California; report made to the Palo Alto board of health. *Board of Health*, Palo Alto, 1905.
- WALTER KENRICK FISHER: In memoriam: Walter E. Bryant, *Condor*, September, 1905. A new Psolus from Monterey Bay, California, *Zoologischer Anzeiger*, December 12, 1905. On the generic name *Stolasterias sladen*, *Annals and Magazine of Natural History*, June, 1906. The starfishes of the Hawaiian Islands, plates, *Bulletin, U. S. Commerce and Labor Department, Fisheries Bureau*, June, 1906. Birds of Laysan and the Leeward Islands, Hawaiian Group, *Bulletin U. S. Fish Commission*, Vol. XXIII, pt. III, 1906. Two new starfishes from Monterey Bay, California, *Zoologischer Anzeiger*, June 19, 1906. A suggestion, *Auk*, April, 1906. Walter E. Bryant, *ibid.*, October, 1905.
- BENJAMIN OLIVER FOSTER: Sexti Properti opera omnia, with commentary by H. E. Butler, (Review); *American Journal of Philology*, October, November, December, 1905.
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- WILLIAM JAMES: Stanford's ideal destiny, *Science*, May 25, 1906.
- HUBERT OLIVER JENKINS: Variation in the hairy woodpecker (*Dryobates villosus*) and subspecies, *Auk*, April, 1906.
- OLIVER PEEBLES JENKINS: Physiology and Hygiene, revised edition, 1906. Primary lessons in physiology and health, revised edition, 1906. The relation of science to education, *San Jose Mercury*, October 9, 1906. Temperature conditions in the Kern River region, *Bulletin U. S. Bureau of Fisheries*, 1906.
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- MARY ISABEL McCracken: Inheritance of dichromatism in *lina* and *gastroidea*; *Journal of Experimental Zoology*, Vol. 3.
- FRANK MACE McFarland: Opisthobranchiate mollusca from Monterey Bay, California, and vicinity, plates; *Bulletin 25, U. S. Bureau of Fisheries*, 1905.
- SIMON JAMES McLEAN: English railway and canal commission of 1888, *Quarterly Journal of Economics*, November, 1905.
- WILLIAM ALBERT MANNING: Groups in which a large number of operators may correspond to their inverses, *Transactions American Mathematical Society*, April, 1906. On the arithmetic nature of the coefficients in groups of finite monomial linear substitutions; *Bulletin American Mathematical Society*, November, 1905. On the primitive group of class ten; *American Journal of Mathematics*, July, 1906.
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- CHARLES DAVID MARX: General education for engineers, *Popular Science Monthly*, Sept. 1905. The effect of the earthquake at Stanford University, *Engineering Record*, vol. 53. (With others) Report of the sub-committee on water supply and fire protection to the committee on the reconstruction of San Francisco, S. F., 1906.
- GUIDO HUGO MARX: (with A. W. Smith) Machine Design, N. Y. Wiley, 1905. Notes on machine drawing, plates, Stanford University, 1905.
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1905. New chapter in trigonometry; *ibid.*, Feb., 1906. Groups contenant plusieurs opérations de l'ordre deuxième; *Comptes rendus, Académie des Sciences*, Paris Institut de France, Oct. 9, 1905. Note on the possible number of operators of order 2 in a group of order 2^m ; *Annals of Mathematics*, Jan., 1906. Note on the term logarithm; *School Science and Mathematics*, Jan., 1906. Study of history of mathematics, *ibid.*, April, 1906. Some recent tendencies in mathematical instruction, *Popular Science Monthly*, Feb., 1906. Some relations between number theory and group theory; *American Journal of Mathematics*, Oct. 1905. The groups which contain less than twenty operators of order three; *American Mathematical Monthly*, Feb., 1906. On a fundamental theorem in trigonometry; *ibid.*, May, 1906. Several fundamental theorems in group theory; *ibid.*, Jan., 1906. Groups containing the largest possible number of operators of order two; *ibid.*, Sept., 1905.
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- THERESA PEET RUSSELL: The mirage, poem; *Out West*, Dec. 1905. The Colorado, poem; *ibid.*, Aug., 1905. An archeological wedding journey, illus.; *ibid.*, Jan. to Dec., 1906. The desert, poem, *ibid.*, April, 1906.
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HENRY SUZZALLO: Rise of local school supervision in Massachusetts. School Committee, 1635-1827; Teachers College, *Columbia University Publications*, 1900.

PAYSON JACKSON TREAT: Origin of the national land system under the Confederation; *Annual Report American Historical Association*, 1905.

ALBERT CONSER WHITAKER: Principles of money and banking by C. A. Conant, review, *Political Science Quarterly*, June, 1906.

STEWART WOODFORD YOUNG: (with W. E. Burke) Further studies on the hydrates of sodium thiosulphate; *Journal American Chemical Society*, March, 1906.

On March 29, 1905, a resolution of the Board of Trustees was passed with a view to a full investigation of the system of entrance requirements and courses of studies in the University. This work was taken up in the course of the year by a sub-committee of the Executive Committee of the Academic Council and the report of the Committee was laid before the Council on May 2, 1906. Final action in the matter was deferred pending further examination of the working of the major subject system. A summary of the conclusions of the Executive Committee will be found in the report of the Registrar appended to this report, and the full text of the Committee's report will be found in Appendix VII. Publication of the records, schedules and other data, provided for in the resolution of the Board, is deferred until final action by the Academic Council shall be taken.

Appended to this report will be found the reports of the various departments of instruction, committees and executives.

Respectfully submitted,

DAVID STARR JORDAN,

President.

December 31, 1906.

APPENDIX I.

DEPARTMENTAL REPORTS

GREEK

During the past year the work of the Department of Greek has been carried on by the following faculty: Professors Murray and Fairclough, Associate Professor Rolfe, Assistant Professors Elmore and Foster, and Instructor Martin.

I append a tabular statement of the courses given :

COURSE	INSTRUCTOR	HOURS WEEKLY	Students	
			1st SEMESTER	2d SEMESTER
1. Elementary	Rolfe.....	5	24	20
2. Plato and Lysias	Elmore.....	3	22	
3. Herodotus and Homer	Foster.....	1		17
4. Composition and Sight Translation	Martin, Elmore ..	2	8	8
7. Homer	Murray.....	3	15	
8. Oratory	Martin.....	3		8
9. Composition and Sight { Translation	Foster, Fairclough.....	2	10	7
13. Private Life of the Greeks	Martin.....	2		32
14. Tragedy	Murray.....	3	4	3
17. Teachers' Course	Murray.....	2	10	
20-21. Theocritus and Alexandrian Poetry {	Murray.....	2	7	3
22. The Greek Epic	Murray.....	2	185	
23. Greek Tragedy	Murray.....	2		179
24. Greek Testament	Murray.....	2		19

AUGUSTUS T. MURRAY,
Professor of Greek.

LATIN

During the academic year 1905-06 the faculty of the department consisted of Professor H. R. Fairclough, Assistant Professor J. Elmore, and Assistant Professors B. O. Foster and E. W. Martin, the two last having been promoted from the rank of instructor. With these the faculty of the Greek department have co-operated in the work of instruction.

For the present at least the Latin department has undertaken the work in Roman History, though History majors will continue to receive credit for the subject from their department.

The number of major students was 74, the number receiving the degree of A. B., 13; and of A. M., 3. Of the three recipients of the degree of A. M., Miss Lillie Lloyd (A. B. University of Toronto, 1904) presented as a thesis, "Bacchylides and Horace;" Miss Helen R. Dowart (A. B. University of Nebraska, 1901), "The Character of Aeneas," and Mr. Peter

Homer Hammond (A. B. Stanford, 1905) "Inconsistencies in the Aeneid."
The courses given in the year are as follows:

INSTRUCTOR	COURSE	Hrs. per Week	Students Enrolled	
			1st Semester	2d Semester
Martin	1. Cicero and Virgil.	3	13	13
Foster	2. Terence, Cicero and Horace	3	22	
Murray	2. Terence, Cicero and Horace	3		25
Elmore	2. Terence, Cicero and Horace	3	26	24
Martin	3. Terence and Selections	2	6	10
Martin	4. Prose Composition I.	2	28	32
Fairclough	5. Horace, Satires and Epistles	3	30	
Elmore	6. Livy and Tacitus	3		25
Elmore	7. Prose Composition II.	2	30	25
Foster	8. Plautus	2	12	
Foster	9. Cicero's Letters	2		16
Foster	10. Suetonius and Pliny	2	9	
Fairclough.	11. Catullus, Tibullus and Propertius	2		14
Rolfe	12. Lucretius	2	10	
Fairclough	13. Prose Composition III	1	12	9
Elmore	14. Juvenal and Martial.	2	10	
Foster	15. Quintilian and Cicero	2		4
Fairclough	16. Prose Composition IV (combined with 13)	1	4	3
Fairclough	17. Teachers' Course	2		12
Fairclough	18. Roman Law	2	29	
Rolfe	19. History of Roman Literature	2		12
Foster	21. Roman Novel	2		5
Fairclough	22 and 24. Seminary and Palaeography	2	9	8
Fairclough	23. Reading of Vergil	2	8	8
Martin	25. Epigraphy	2		5
Foster	26. Historical Grammar	2		2
Elmore	28. History of Classical Philology	1	5	
Rolfe	29. History of Rome	3	130	150
Fairclough	31. Roman and Monuments.	2		87
Martin.	32. Roman Private Life.	2	43	
Elmore	33. Roman Political Institutions	2		43

H. RUSHTON FAIRCLOUGH,
Professor of Latin.

GERMAN

At the opening of the academic year 1905-6, the instructing force of the German department consisted of Professors James O. Griffin, Assistant Professors Karl G. Rendtorff, William A. Cooper, Macy M. Skinner, and Instructor Charles F. Schmutzler.

Early in the semester Dr. Charles Phillips was appointed assistant, and at the beginning of the second semester two additional assistants were appointed, Dr. Jean du Buy and Miss Adele Meyer. On October 13th Professor Griffin was compelled by illness to discontinue his work for the year, and the same was in part continued by the other members of the department.

There were registered in the department during the year 101 major students, of whom 5 were graduates; 94 undergraduates, and 2 specials. A detailed description of the courses given will be found on pages 78-82

of the Register for 1904-5 and also in the President's Second Annual Report.

The following tabulated statement will show the work of the department for each semester of the year 1905-6:

FIRST SEMESTER

No. of Course	SUBJECT	Hours Weekly	Griffin	Rendtorff	Cooper	Skinner	Schmutzler	Number Registered In Course
1	Elementary.....	5	39		35	24	19	117
2a.	Minna von Barnhelm..	3	56		41	23	31	151
2b.	Rapid Reading.....	2	57			22		79
4	Modern Drama.....	2	33					33
5	Iphigenie.....	3	39	34				73
6	Modern Novels.....	2				20		20
7a.	Composition.....	2					50	50
7b.	Deutsche Stilübungen	2		15				15
8	Syntax.....	2		4				4
9	History of Civilization.	2		4				4
10	Teachers' Course.....	2			19			19
11	Goethe.....	2			20			20
12a.	History of Literature..	2		39				39
14	Middle High.....	2		17				17
20	Gothic.....	2				2		2
22	Seminary.....	2	16					16
No. students registered in all courses..			240	113	115	91	100	659
No. of hours of instruction per week..			15	13	12	14	12	

SECOND SEMESTER

No. of Course	SUBJECT	Hours Weekly	Rendtorff	Cooper	Skinner	Schmutzler	Phillips	DuBuy	No. in Course
1	Elementary.....	5		31	21	19	22		93
2a.	Heine.....	3		31	20	20	60		131
2b.	Seidel.....	2			27		31	24	82
5	Wallenstein.....	3	38					31	69
5	Modern Novels.....	2			29				29
7a.	Composition.....	2				50			50
7b.	Deutsche Stilübungen	2	9						9
8	Syntax.....	2	8						8
10	Teachers' Course.....	2		17					17
11	Goethe.....	2		29					29
12a.	History of Literature..	2	38						38
15	Walther von der Vogelweide.....	2	16						16
22a.	Seminary.....	2							4
22b.	Middle-High Pro-Seminary.....	2	3		4				3
No. students registered in all courses..			112	108	101	89	113	55	578
No. of hours of instruction per week..			13	12	14	12	11	5	

JAMES O. GRIFFIN,
Professor of German.

ROMANIC LANGUAGES.

During the year 1905-6 the faculty of the department consisted of Professor John E. Matzke, Associate Professor Oliver M. Johnston, Assistant Professor Colbert Searles, and Instructors Stanley Smith and Clifford G. Allen.

Seventeen undergraduate courses were given during the year representing sixty-one hours of instruction per week. The following table gives an outline of this work together with the registration during each semester:

Course	No. of Sections	Registration 1st Semester	Registration 2d Semester	Recitations per Week	Instructors
1. Elementary French..	4	123	101	3	Searles, Johnston, Allen
2. Modern Fr. Syntax..	2	47	37	2	Searles, Smith.
3. Modern Fr. Reading.	3	78	65	2	Searles, Smith.
4. French Conversation.	2	36	29	3	Johnston, Smith.
5. Classical French.....	1	44	42	3	Johnston.
6. Classical Fr. Lit.....	1	23	16	2	Searles.
7. 19th Cent. French Lit.	1	8	8	2	Johnston, Matzke.
8. Advanced Fr. Comp.	1	32	21	2	Matzke.
9. French Themes.....	1	13	12	1	Johnston.
10. Elementary Spanish..	2	56	48	3	Allen, Smith.
11. Mod. Span. Syntax..	1	16	15	2	Allen.
12. Mod. Span. Reading.	2	22	17	2	Allen, Smlth.
13. Spanish Conversation	1	11	15	3	Allen, Smith.
15. Adv. Span. Comp....	1	12	6	2	Allen.
18. Elementary Italian...	1	12	10	3	Johnston.
20. Phonetics.....	1	26		3	Matzke.
21. Teachers' Course in French.....	1		17	2	Matzke.

The graduate instruction during the year consisted in the following courses by Professor Matzke:

Old Spanish, 2 hrs. per week, first semester: enrollment, 1.

Popular Latin, 2 hrs. per week, second semester: enrollment, 2.

The work of the seminary centered in the theatre of Molière throughout the year.

JOHN E. MATZKE,
Professor of Romanic Languages

ENGLISH.

The work of the department for the year 1905-06 was conducted by the following teaching staff:

Melville Best Anderson, professor; Alphonso Gerald Newcomer, associate professor; Raymond MacDonald Alden, Samuel Swayze Seward, Jr., Howard Judson Hall, and Lee Emerson Bassett, assistant professors; Edward Kirby Putnam and Henry David Gray, instructors; and Anna Pearl Cooper, assistant.

Dr. Edward Flügel of the department of English Philology, was absent during the year, engaged upon the Chaucer Dictionary under a grant

from the Carnegie Institution. Associate Professor Newcomer was absent on sabbatical leave during the second semester. Instructor Putnam resumed work after an absence of one year, resigning at the close of the year. During the year 1906-07 Professor Anderson will be absent on sabbatical leave.

The number of students registered as English majors was: Graduates, 11; undergraduates, 198; specials, 13; total, 222. The number of students enrolled in graduate courses was 40; in all courses, for the first semester, 1126; for the second semester, 1036, distributed as in the appended table:

Instructor	COURSE	Hours per week	Number of Students 1st Semester	Number of Students 2d Semester
Bassett.	1. Vocal Expression, 2 sections	2	76	62
Bassett.	2. Vocal Training	2	31	
Bassett.	3b. Vocal Interpretation	2		29
Bassett.	4. Public Speaking	2		24
Newcomer, Hall, Gray, Cooper ..	5. Introduction to Prose, 5 sections	3	312	
Hall, Gray, Cooper	6. Introduction to Poetry, 4 sections	3		326
Seward.	7. Prose Narration	3		66
Seward, Putnam, Hall, Gray, Cooper.	8. Composition, 9 sections	2	246	220
Alden.	9. Argument.	3	22	
Alden, Bassett, Duniway	10. Debate.	2	22	22
Seward.	11. Advanced Composition	1	14	19
Seward.	12. Teachers' English	3	32	
Alden.	13. Prosody	2		39
Newcomer.	14. 19th Century Prose	3	63	
Gray.	15. Outline History of Eng. Lit.	2	86	66
Seward.	16. English Drama	2		33
Alden.	20. Early 19th Century Lit.	2	44	
Anderson.	22. Browning	3	23	
Anderson.	23. Milton	3	62	
Anderson.	25. Shakspeare	3		42
Anderson.	26. Elizabethan Literature	3		32
Newcomer.	28. Development of English Prose	2	10	
Anderson.	29. Shakspeare Criticism	2	6	18
Alden.	31. Lyric and Epic	2	4	11
Alden, Seward.	Eng. Philol. 1. Anglo-Saxon	3	31	26
Alden.	Eng. Philol. 2. Chaucer.	2	41	
Putnam.	Eng. Philol. 11. Middle Eng.	2	1	1
	Total. ....	....	1126	1036

The figures show a little more than 300 student credit hours per semester for each instructor. The heavy registration in Composition

courses made it necessary to admit no first year students except English majors.

A. G. NEWCOMER,
Associate Professor of English.

PSYCHOLOGY.

The faculty of this department consists of Frank Angell, professor, and Miss Lillian J. Martin, assistant professor.

The class lists in the Registrar's office show the following attendance in the several courses of the Department of Psychology for the academic year 1905-06:

Course	Instructor	Hours Weekly	Attendance	
			1st Sem.	2d Sem.
Psychology 1	Angell	3	104	82
" 2	Angell	2 or 3	12	9
" 4	Angell, Martin	3	3	3
" 5	Martin	2	62	
" 7	Angell	2		113
Extra Course, Optics	Angell	2		6
Special Work	Angell	individual		3

The establishment of a Department of Philosophy is greatly desired by the Department of Psychology. It seems hardly fair to take students for advanced degrees in Psychology without opportunity for the accessory work in Philosophy.

The amount of breakage of apparatus caused by the earthquake was small, probably ten dollars would restore all that was actually broken. The greatest amount of injury probably came from the clouds of plaster dust which penetrated the apparatus cases.

Five of the work rooms of the laboratory have been closed by the Commission of Engineers and three others are in part taken up with timber bracing.

FRANK ANGELL,
Professor of Psychology

EDUCATION.

The faculty of the department consisted of Associate Professor Ellwood P. Cubberley and Assistant Professors Henry Suzzallo and David S. Snedden.

During the year 1905-06 Assistant Professor Snedden was absent on leave at Teachers' College, Columbia University, and at the close of the year resigned to accept a permanent appointment at that institution. Assistant Professor Suzzallo and Professor Cubberley both returned from leaves of absence and constituted the faculty of the department during the past year. Mr. Frank E. Thompson, a graduate of this University and until recently supervisor of the training school in the San Diego State Normal School, has been appointed an Instructor in Education, but will be on leave of absence for study during 1906-07.

During the past year the courses offered and the enrollment in each have been as shown in the following table:

Instructor	COURSE	No of Hours pr. Week	Attendance	
			1st Semester	2d Semester
Cubberley	1. Public Education.....	2	99	
"	1b. Principles of Education ..	2		77
Suzzallo	2. Hist of Education in Europe	3	56	51
"	3. Hist. of Educ. in America ..	2	27	15
"	4. Elementary Education	3	50	
"	5. Secondary Education.....	3		55
Cubberley	9. City School Administration	2	22	23
"	10. State School Admin'tration	3	14	12
"	11. Thesis Work.....	1	1	2
Suzzallo	11. Thesis Work.....	1	0	3
"	12. Special Courses	2-5	2	2
Cubberley	12. Special Courses	2-5	6	4
Cubberley	13. Journal Club.....	1	18	23
Suzzallo				
Suzzallo	13a. Current Educ. Theories ..	2		10

Much of the work of the Department of Education is of the nature of a general university service, as only one student in ten (27 out of 272), in the different courses during 1905-06, was a major student in Education. While such general service is important, and can not be neglected, the most important service of the department is and should continue to be that of carefully training a small number of selected men to go out and become leaders in the schools of the nation. As fast as general university conditions will permit, the work of this department should be placed on such a basis that an increasing number of such men will be attracted to this institution for such special study.

ELLWOOD P. CUBBERLEY,
Professor of Education.

HISTORY.

The staff in History for the year 1905-06 consisted of Professors Max Farrand and Arley Barthlow Show; Associate Professors Clyde Augustus Duniway and Ephraim Douglass Adams; Assistant Professor Henry Lewin Cannon, and Instructor Payson Jackson Treat.

During the year Professor Farrand was absent on leave, carrying on his studies in eastern libraries on the Formation of the Federal Constitution. He gave lectures at Cornell University regularly during the entire year, and a short course of lectures at the University of Wisconsin.

Associate Professor Adams was acting executive head of the department. In March, 1906, he was appointed Professor of Modern European History.

At the request of the Pacific Theological Seminary Professor Show gave, at Berkeley, California, a course of lectures on Ancient and Medieval History, two hours a week throughout the year 1905-06. He is continuing this work through the present year.

In the absence of Professor Farrand, Mr. Payson J. Treat, as acting instructor, gave one general lecture course and one advanced course in

American History. In March, 1906, Mr. Treat was regularly appointed Instructor in History with a year's leave of absence. He will spend the year in the Orient, and expects to return to Stanford to offer courses in the history of those countries of the Pacific Ocean in which the United States is specially interested.

The following is a list of courses given in 1905-6, with hours of credit and attendance each semester:

Instructor	COURSES	No. Hours pr. Week	No. Students First Semester	No. Students Second Semester
Cannon	1. Training.....	2	36	32
Show.....	3a and 3b. Middle Ages.....	3	77	89
Cannon.....	4a and 4b. English History ...	3	166	182
Adams	5a and 5b. Mod. Europ. History	2	150	128
Treat.....	8. U. S. 1783-1844.....	3	91	
Duniway	8. U. S. since 1844	3		95
Treat.....	9. Western Movement	3		60
Cannon.....	11. English Constitution	2	23	19
Adams	15. Europe since 1789.....	2	14	11
Duniway	18. Dip. History U. S.	3	17	
Duniway	19. International Law.....	3	12	11
Department ...	21. Hist. Composition	1	37	33
Show.....	27. Painting of Italian Ren....	1	3	1
Show.....	28. Medieval Institutions.....	1		3
Cannon.....	30. Magna Charta	2		11
Adams	31. Eng. Dip. History.....	2	7	6
Treat.....	32. U. S. Constitution.....	2	4	4
Adams	35. Eng. Col. in Australia.....	3	1	2
Duniway	37. Seminary U. S. History ...	2	14	14
Adams	Special	2	2	2
Treat.....	Special	2		1
			654	704

The most important feature of the work during the past year was the introduction of the Historical Training Course required of History Majors in their first year. The first purpose of the course is to teach the students how to use the University Library to the best advantage. Its secondary purpose is to give students practical training in the finding and use of historical material. The work was in charge of Assistant Professor Cannon, the other members of the Department co-operating. As it was to a certain extent experimental, changes have been necessitated, but the course was markedly successful, and in a modified form will be continued in the future, not only for first year students, but for second year students as well.

Pending the establishment of a Department of Political Science or Government, Associate Professor Duniway has offered for 1906-7 an introductory course in Modern Constitutional Governments, three hours each week.

MAX FARRAND,
Professor of History.

ECONOMICS AND SOCIAL SCIENCE.

The following table shows the courses offered by the department during the year 1905-06, together with the number of students taking the work:

Instructor	COURSE	Units	1st Semester	2d Semester
McLean, Whitaker.... }	1. Elements of Economics.	3-2	181	154
Millis	2. Principles of Economics	2	40	30
Whitaker.....	3. Economic Theory	2	6	8
Whitaker.....	4. Money and Banking.....	3	78	59
McLean.....	5. Transportation.....	3	18	
Whitaker.....	6. Corporations and Trusts....	2	46	32
Millis	8. Public Finance.....	3	13	13
Millis	10. Industrial History of Eng...	3		21
Millis	11. The Labor Problem.....	3	24	
McLean.....	15. Thesis Work.....	1	2	
McLean.....	16. Railway Regulation.....	2	11	

The total number of students taking work in Economics was, for the first semester, 362; for the second semester, 265. Students taking Economics as a major subject numbered 93.

The staff of the department consisted of Associate Professor McLean and Assistant Professors Millis and Whitaker, together with student assistants Donald Seibert and William C. Shelton. Associate Professor McLean resigned at the close of the first semester to accept a position as Associate Professor of Economics in the University of Toronto. Assistant Professor Whitaker was appointed acting executive of the department. Mr. Whitaker also took up Mr. McLean's work in connection with the course in the Elements of Economics. This course was given as a three hours course during the first semester, with two lectures and one oral quiz per week, but the reduction of the teaching force made it necessary to omit the quiz section during the second semester.

New appointments made in the department, taking effect August 1, 1906, were those of Allyn A. Young, Assistant Professor of Economics in the University of Wisconsin, as Associate Professor and Executive Head of the department, and Thorstein Veblen, Assistant Professor of Economics in the University of Chicago, as Associate Professor. Associate Professor Whitaker has been given a leave of absence for the year 1906-07 for the purpose of study. He will also give a course of lectures at Columbia University.

ALLYN A. YOUNG,
Associate Professor of Economics.

LAW.

During the session of 1905-06 the teaching force of the Law Department comprised Professor Nathan Abbott, Assistant Professor C. H. Huberich and Instructors A. M. Cathcart, Roy V. Reppy, Leon P. Lewis, and Wesley N. Hohfeld. Mr. Reppy resigned in October, 1905, and was succeeded by Mr. Hohfeld.

At the close of the year Mr. C. A. Huston was elected instructor in law, in addition to the faculty above named; Mr. C. H. Huberich was

promoted to an associate professorship, and Mr. A. M. Cathcart was advanced to an assistant professorship.

The registration of students during the first semester was 270, of whom 18 were graduate, 226 undergraduate, and 26 special students. The registration of the second semester was 276, of whom 19 were graduate, 230 undergraduate, and 27 special students.

The courses of instruction given, and the enrollment in each were as follows:

Instructor	No.	SUBJECT	Hrs. per Week in Year	Number of Students	
				1st Sem.	2d Sem.
Cathcart.....	2	Contracts.....	3	82	72
Huberich.....	3	Criminal Law.....	3	71	67
Cathcart.....	4	Torts.....	2	57	58
Abbott.....	5	Property I.....	3	49	53
Hohfeld.....	6	Equity I.....	2	67	65
Lewis.....	8	Bills and Notes.....	3-2	30	30
Hohfeld.....	10	Equity II (Trusts).....	2	22	21
Hohfeld.....	11	Evidence.....	3	21	20
Cathcart.....	13	Pleading.....	2	24	29
Abbott.....	14	Property II.....	2	20	19
Lewis.....	15	Sales.....	3		16
Huberich.....	17	Conflict of Laws.....	2	4	3
Huberich.....	18	Const. Law.....	3	9	11
Lewis.....	19	Corporations.....	2	22	20
Lewis.....	21	Partnership.....	2	12	
Abbott.....	22	Property III.....	3	17	15

The number of volumes added to the Law Library during the year from August 1, 1905 to July 31, 1906, was 229, making the total number of volumes in the Law Library at the latter date, 8170.

C. H. HUBERICH,
Associate Professor of Law.

DRAWING.

The work of the department has been conducted by Associate Professor Arthur Bridgman Clark, Assistant Professor George Loftus Noyes, and Instructor Chloe Lesley Starks.

The classes conducted are shown in the following table:

Instructor	COURSE	Hours Weekly	No. of Students	
			First Semester	Second Semester
Starks.....	1. Elementary.....	2 to 5	37	
	9. Scientific Illustration.....	2 to 5		4
Noyes.....	2. Elementary Cast.....	3 to 5	14	19
	3. Advanced, Head from Life.....	3 to 5	12	17
	4. Painting.....	2 to 5	2	5
Clark.....	5. Landscape.....	3 to 5	20	33
	6. Lectures on Painting.....	2	59	
	11. Design.....	2	20	22
	7. Journal Club.....	1		17
			164	117

The numbers of students in the same classes show an average increase of thirty per cent over the preceding year.

Scientific perspective, and a teachers' course, are taught in alternate years only, and were omitted this year.

The course in design was given for the first time this year as a separate course, although it had been anticipated somewhat in the past as a part of the course in landscape drawing.

The resignation of Professor Noyes at the close of the year causes a loss to the department of one who has been a valuable instructor for four years. His classes are being conducted during the present semester by Miss Florence Lundborg.

Miss Lundborg is also giving instruction in illustrative composition, a subject which is a desirable addition.

A. B. CLARK,
Associate Professor of Drawing.

MATHEMATICS.

The department instructors were R. E. Allardice, Professor; R. L. Green, Professor; G. A. Miller, Associate Professor; H. F. Blichfeldt, (absent on leave) Assistant Professor.

Some changes were made in the undergraduate courses this year, in order that students might take up Calculus in their sophomore year, and so be enabled to reach the higher branches of Mathematics earlier in their course. As a consequence, a freshman class in Synthetic Geometry, which has been given regularly by Professor Allardice for a number of years, was discontinued; but it may possibly be resumed as an optional course, in a modified form. The graduate courses vary from year to year, in order that students may have the opportunity of studying the various branches of higher mathematics.

Two theses for advanced degrees were prepared by students under the direction of Professor Miller, and one under that of Professor Allardice.

A number of papers were read by instructors and graduates of this department at the two meetings of the San Francisco section of the American Mathematical Society held during the academic year.

COURSES OF INSTRUCTION

FIRST SEMESTER

CLASS		Units	Number of Students
1. Trigonometry	Miller	2	32
3. Algebra	Green	5	21
9. Algebra, Introductory to Calculus.	Green	2	15
10. Coördinate Geometry	Miller	3	13
11. Modern Anal. Geometry	Green	2	2
12. Calculus	Allardice	3	9
13. Advanced Calculus	Allardice	2	6
15. Differential Equations	Allardice	3	3
19. History of Mathematics.	Miller	2	8
21. Projective Geometry	Allardice	2	8
22. Theory of Groups	Miller	2	4
Sp. Higher Plane Curves	Allardice	1	1
24. Seminary in Groups	Miller	2	3

SECOND SEMESTER.

CLASS	Instructor	Units	Number of Students
2. Solid Geometry.....	Miller.....	2	35
5. Coördinate Geometry.....	Green.....	5	14
9. Alg. Introductory to Calculus ..	Green.....	2	11
10. Coördinate Geometry.....	Miller.....	3	12
11. Modern Anal. Geometry	Green.....	2	2
12. Calculus.....	Allardice.....	3	9
14. Theory of Functions.....	Allardice.....	2	7
15. Differential Equations.	Allardice.....	3	3
20. Astronomy	Miller.....	2	156
21. Projective Geometry.....	Allardice.....	2	7
22. Theory of Groups.....	Miller.....	2	4
Sp. Higher Plane Curves.....	Allardice.....	1	1
24. Seminary in Groups	Miller.....	2	3

R. E. ALLARDICE,
Professor of Mathematics.

APPLIED MATHEMATICS.

The members of the teaching force of the Department of Applied Mathematics for the year 1905-06 were Professor L. M. Hoskins, Assistant Professor H. C. Moreno and Instructor W. A. Manning. The following student assistants were employed for the correction of exercises required in connection with the regular class instruction: T. G. Brown, A. Ranum, H. W. Stager, R. A. Fuller, C. H. Paxton, H. R. Thomas.

The enrollment in the courses required of all first- and second-year students in engineering showed a considerable increase over previous years, and the work of the department was necessarily directed mainly to this required work. Professor Moreno, however, gave in addition course 7 on the Adjustment of Observations, a more advanced elective course of great value to engineers. The instructional work of the department is shown in detail in the following table:

Course No.	SUBJECT	First Semester			Second Semester		
		Units	Number Enrolled	Instructor	Units	Number Enrolled	Instructor
1	Algebra I, II, III.....	5	206	{ Moreno, Manning			
2	Solid Geometry.....	2	41				
3	Trigometry	3	97		3	120	Moreno.
4	Coördinate Geo.I,II,III				5	161	{ Moreno, Manning Hoskins.
5	Calculus	3	110	Hoskins.	3		
6	Theoretical Mechanics.	5	117	Hoskins.	5		
7	Adjustment of Obs.....				2	15	Moreno.
*3a	Hydraulics.....				2	59	Hoskins.
*3b	Hydraulic Motors.....	2	31	Hoskins.			

* Scheduled under Engineering.

Other work by members of the department included five published papers by Mr. Manning on different phases of group theory, and the

completion of a text-book on hydraulics by Professor Hoskins.

L. M. HOSKINS,
Professor of Applied Mathematics.

PHYSICS.

The faculty of the Physics Department for the year 1905-06 consisted of Professor Sanford, Associate Professor Stearns, Assistant Professors Rogers and Drew and Instructor Brown. There were also employed as laboratory assistants Professor G. A. Clark of Yankton College, Mrs. Grace N. Brown, Miss Grace H. Bruckman (for one semester) and Mr. Wendell P. Roop, the latter not assisting in instruction. Professor Stearns was absent on sick leave during the entire year, and his lecture courses were not given.

The facilities of the department were materially increased at the beginning of the year by the addition of about five thousand dollars' worth of new physical apparatus. This addition to the former equipment has enabled the undergraduate laboratory work to be put on a fairly satisfactory basis.

The damage to the physical laboratory and the lecture rooms of the department by the earthquake was very considerable, but the basement laboratories were not damaged and the laboratories on the first floor have been repaired so that the department is not crippled for want of room.

The courses given in the department during the year with the attendance in each class is shown in the following table:

COURSE	Instructor	Lecture U'ts pr. Week		Lab. Units per Week		Attendance	
		1st Sem	2d Sem	1st Sem	2d Sem	1st Sem	2d Sem
1. Dynamics	Brown, with lab. Assts. Clark, G. N. Brown, and Bruckman	1	1	7	5	59	53
2. Electricity and Magnetism	Drew	1	1	3	3	12	34
3. Heat	Sanford, with lab. Asst. G. N. Brown	1	1	2	2	4	9
4. Sound	Brown			2		5	
5. El. Optics	Sanford, with lab. Asst. G. H. Bruckman		2		2	4	11
7. Electricity and Magnetism	Rogers and Drew	2		4		59	
8. Experimental Optics	Sanford			2	2	4	2
9. Electrical Measurem'ts	Rogers			3	3	23	12
10. Investigation ..	Sanford					1	2
11. Gen'l Physics ..	Sanford	4	4			4	3
12. Elec. Theory ..	Drew	3				1	
13. Teachers' Physics	Sanford	1	1			4	5
17. History of Physics	Rogers		2				4

In the above table courses 5 and 8, though registered as separate courses, were given in the same laboratory at the same time.

Mrs. Grace N. Brown completed the work for the Master's degree,

offering for a thesis the results of her experimental work on the Optical Retardation Constant in Iodine Solutions.

FERNANDO SANFORD,
Professor of Physics.

CHEMISTRY.

The staff in Chemistry for the year 1905-06 comprised: Professors John Maxson Stillman, Lionel Redmond Lenox, and Edward Curtis Franklin; Associate Professor Stewart Woodford Young, Assistant Professor Robert Eckels Swain; Instructor Alvin Joseph Cox, and Acting Instructor James Pearce Mitchell.

The courses of instruction in Chemistry given during the year 1905-06 and the attendance upon them were as follows:

LECTURE COURSES.

COURSE	Instructor	Hours pr. Week	Attendance	
			1st. Sem.	2d Sem.
1. General Inorganic	Prof. Swain.....	2	259	197
2. Principles of Chemistry.....	Prof. Stillman.	3	44	36
3. Organic Industry.....	Prof. Franklin.....	2	33	24
4. Industrial Chemistry....	Prof. Stillman.	2	17	12
5. History of Chemistry....	Prof. Stillman.	2	10	..
6. Qualitative Analysis....	Prof. Lenox.....	1	36	34
8. Physical Chemistry....	Prof. Young.	3	13	7
10. Theories of Anal. Chem.	Prof. Young.....	1	..	13
12. Seminary.....	Profs. Stillman, Franklin, Young.		7	12

Lectures were also given by Professor Lenox one hour per week each semester on Assaying, and Dr. Cox one hour per week each semester on the technique of Quantitative Analysis, in connection with laboratory work, but for which no separate registration was made nor separate credit allowed.

The large increase in the elementary classes this year is mainly due to requirements in the engineering departments, which have caused an unusual number to take their chemistry this year. The elementary classes next year will not be so disproportionately large.

LABORATORY COURSES

a. General Inorganic. Prof. Swain, Mr. Mitchell and student assistants. Barnett, Bateman, Greer and Price. 2 afternoons per week, both semesters. 122 first semester, 100 second semester.

b. Qualitative Analysis. Prof. Lenox and student assistant Fitzgerald. 3 afternoons per week each semester. 36 first semester, 34 second semester.

c. Organic Chemistry. Preparation. Prof. Franklin and student assistant Burke. 3 afternoons per week, either semester. 7 first semester, 11 second semester.

d. Quantitative Analysis. Prof. Stillman and Instructor Cox. 3 or 4 afternoons per week either semester. 28 first semester, 22 second semester.

e. Mineral Analysis. Profs. Stillman, Lenox and Instructor Cox. 3 or 4 afternoons per week either semester. 4 first semester, 8 second semester.

f. Physical Chemical Measurements. Prof. Young and student assistant

Burke. 3 to 5 afternoons per week either semester. 9 first semester, 3 second semester.

g. Physical Chemical Research. Prof. Young and student assistant Burke. Hours as arranged. 1 first semester, 3 second semester.

h. Physiological Chemistry and Food Analysis. Prof. Swain. 3 afternoons per week both semesters. 7 second semester.

j. Special Methods of Analysis, especially Iron and Steel. Prof. Lenox. 4 afternoons per week, second semester. 2 first semester, 3 second semester.

k. Organic Chemistry. Research. Prof. Franklin. Hours as arranged. 2 second semester.

m. Elementary Organic Analysis. Prof. Franklin 2 afternoons either semester. 2 first semester.

n. Assaying. Prof. Lenox and student assistant Avery. 3 afternoons per week either semester. 20 first semester, 17 second semester.

o. Water Analysis. Prof. Stillman. 3 afternoons second semester. 3 second semester.

sp. Thesis and Special Research. Various as specified below. 5 first semester, 9 second semester. Total 236 first semester, 222 second semester.

In addition to those registered above, some five students in the first semester and eleven in the second occupied desks for the completion of work registered for in previous semesters.

Research work was carried on in 1905-6 as follows:

Professor Franklin was engaged in the continuation of his study of reactions in liquid ammonia and of the mercuri-ammonium compounds.

Professor Young with assistant W. E. Burke continued the investigation of the phenomena of supercooling and superheating.

Assistant Professor Swain was occupied with the investigation of chronic arsenical poisoning and the determination of arsenic.

Instructor Cox was occupied with a study of the bichromates of the heavy metals.

Mr. H. D. Gibbs, candidate for Ph. D., continued his studies of methylamine as a solvent, being especially engaged in determining the conductivity of various solutions.

Mr. W. E. Burke, under direction of Prof. Young, was engaged in a study of supercooling phenomena.

Mr. F. F. Fitzgerald, candidate for A. M., under direction of Prof. Franklin, was engaged in the preparation of certain ammonia-salts.

Mr. P. W. Avery, candidate for A. M., under direction of Prof. Lenox, carried on an investigation of certain modifications of the methods of iron and steel analysis.

Mr. J. E. Dunipace, candidate for A. M., was engaged, under the direction of Prof. Stillman, in the attempt to find a method for the determination of boric acid.

Mr. W. D. Harkins, candidate for the degree of Ph. D., in continuation of his thesis, has been especially occupied with certain factors influencing the determination of arsenic by the Marsh test.

Mr. D. M. Greer, candidate for degree of Chemical Engineer, is occupied with a study of local water supplies, under direction of Prof. Stillman.

The registrations in the courses were, by major subjects of students taking work in this department, as follows:

MAJOR SUBJECTS	Lecture Courses		Laboratory Courses	
	1st Sem.	2d Sem.	1st Sem.	2d Sem.
Chemistry.....	145	119	76	77
Geology and Mining.....	59	65	82	58
Physiology.....	34	30	22	20
Mechanical Engineering.....	36	25	11	16
Civil Engineering.....	33	18	10	6
Electrical Engineering.....	65	50	17	35
Physics.....	6	3	1	0
Botany.....	2	1	1	1
Zoology.....	1	1	1	1
English.....	5	4	3	3
Law.....	8	4	4	0
Education.....	3	2	2	1
German.....	5	4	2	1
Economics.....	9	6	3	2
History.....	2	1	1	1
Mathematics.....	1	1	0	0
Latin.....	3	0	0	0
Romanic Language.....	1	1	0	0
Greek.....	1	0	0	0
Totals.....	419	335	236	222

Near the close of the year, Dr. A. J. Cox was given leave of absence to accept a position as chemist in the Bureau of Science of the Philippines, and Mr. W. H. Sloan, A. B. '03, A. M. '04, has been appointed to fill the vacancy with the title of acting instructor.

Professor Young having been granted leave of absence for the ensuing year, Mr. W. E. Burke, for two years assistant in Physical Chemistry, has been appointed acting instructor to have charge of the laboratory for physical chemistry during Prof. Young's absence, the lectures in physical chemistry being given by Professor Franklin.

The damage to the building by the earthquake necessitated the vacating of the second floor of the laboratory for the ensuing year, and while this will necessitate greater inconvenience and labor for the year to come, it is evident that essentials of student work will not be sacrificed.

J. M. STILLMAN,
Professor of Chemistry.

GENERAL BOTANY.

The personnel of the department for 1905-06 consisted of Douglas Houghton Campbell, professor; George James Peirce, associate professor, and Anstruther A. Lawson, instructor. Professor Campbell was away from early May, 1905, till late August, 1906. During this time he attended the triennial meeting of the International Botanical Society in Vienna, taking part in the scientific proceedings and in the botanical excursions; was a guest, with other members of the British Association for the Advancement of Science, of the South African government at the time of the Association's meeting at Cape Town and in the interior; visited India and Ceylon, working for a time in the Royal Botanical Garden in Pera-

denya; spent over three months at the famous tropical botanical gardens in Java; and returned home by way of Japan. On this long and varied journey botanical observations and collections of great value were made. Material of the utmost importance for morphological studies and for exhibition purposes was collected by Professor Campbell and is now being studied in our laboratory. His courses were omitted last year.

Dr. Lawson, for four years instructor, has been promoted to the rank of assistant professor. He is absent on leave in Europe for the current year, continuing his cytological studies of the Gymnosperms. His courses are omitted for this year. His place is partly filled by Mr. H. B. Humphrey, a graduate student, candidate for the Doctor's degree, appointed acting instructor for this year.

Owing to the absence of officers of the department, the attendance on the various course has not been entirely regular; but such courses as have been given regularly show gratifying gains in attendance.

The following courses of instruction were given last year:

COURSE	Instructor	Hours for Work		Attendance	
		Lecture	Lab'tory	1st Sem.	2d Sem.
1. Elem. Botany.....	Pierce.	1	5	42	38
4 and 8. Exper. Physiology of	Lawson.				
Plants.....	Peirce.	1	5	12	9
6. General Physiology of					
Plants.....	Peirce.	1		40	
9. Histology.....	Lawson.	1	6	3	
10. Morphology.....	Lawson.	1	6		3
12. Advanced.....	Peirce.	(Individual)		3	2

The meetings of the Botanical Society, composed of both officers and students, and wholly conducted by students, have been held regularly. Besides the informal reports and discussions, the Society has taken the important step of making an annual gift to the department of some article of permanent value. The first gift was a framed India proof etching of Collier's portrait of Charles Darwin. This is hung in the Library Room.

The equipment of the Department and the valuable collections of its officers suffered little damage by the earthquake of April 18th, but certain experiments then in progress were brought to an abrupt end.

GEORGE J. PEIRCE,
Associate Professor of Botany.

SYSTEMATIC BOTANY.

The department faculty for 1905-06 consisted of William Russell Dudley, professor, and Harry Baker Humphrey, acting instructor.

The following courses were offered:

COURSE	Instructor	Hours	Attendance	
			1st Sem.	2d Sem.
2. The Fungi.....	Dudley (Lecture), Dudley and Humphrey (Lab.)..	5	14	
3. Spermaphyta.....	Dudley (Lecture), Dudley and Humphrey (Lab.)..	4	.	10
5. Geogr. Distr. and Forest Botany. ...	Dudley (Lecture), Dudley and Humphrey (Lab.)..	3	..	15
7. Advanced Work...	Dudley.....	3 +	5	5

Four graduate students were registered for work in the department during the year. An unusual amount of field work was accomplished by the students, particularly in the Fungi.

The survey of the Santa Cruz mountain peninsula has been directed toward the lower plants, notes on the geographical limits of the lower and higher plants, and the collection of data of temperature and precipitation. Professor Dudley has also continued work on the Big Trees and their environment.

Mr. A. C. Herre published a paper on the Lichens of Santa Cruz Mountains, and continued investigations in the same field throughout the year.

The Herbarium has been increased by an important addition of 2267 specimens from the National Herbarium at Washington, and by collections from Harvard University, the Department of Forestry in the Philippine Islands, and from the officers of this department.

Mrs. O. A. Humphreys has been occupied during the year in the drawing of a large series of charts for lecture-room purposes. Instructor H. B. Humphrey did quite satisfactory work, but felt obliged to return to the department of General Botany to resume his work there on the return of Dr. Campbell. Mr. James McMurphy, Herbarium Assistant during 1905-06, has been made laboratory assistant in Systematic Botany, taking Mr. Humphrey's place.

During the absence of Professor Dudley on sabbatical leave in 1906-07, Assistant Professor LeRoy Abrams, a graduate of this University and formerly instructor here, will have charge of the work in the department. Professor Abrams for two years past has been connected with the New York Botanical Gardens and the National Herbarium at the Smithsonian Institution, and engaged in special investigations of the Southern California flora, which occupied him for some years previous.

WILLIAM R. DUDLEY,

Professor of Botany.

PHYSIOLOGY AND HISTOLOGY.

The faculty of the department for 1905-06 consisted of Oliver Peebles Jenkins, professor; Frank Mace McFarland, associate professor; James Rollin Slonaker and Clara S. Stoltenberg, assistant professors; and John Francis Cowan, instructor.

The following courses were given during the year 1905-1906. Each course is designated by the number given to it in the Register of 1905-06, to which reference may be made for a more detailed statement of the nature of the courses.

COURSE	Instructor	Hours	Attendance	
			1st Sem.	2d Sem.
1. Gen. Anatomy and Physiology	Jenkins, assisted by Slonaker, Cowan and Stoltenberg.	3	52	43
2. Physiology of Muscle, Blood and Circulation.	Slonaker, assisted by Cowan	3	27	
3. Physiology of Digestion, etc	Slonaker, assisted by Cowan	3		20
4 and 4a. Structure of Nervous System.....	Stoltenberg.....	3	14	2
6. Physiology of Nervous System	Jenkins, assisted by Stoltenberg.....	3		13
7. Vertebrate Eye.....	Slonaker	2		4
8. Advanced Physiology...	Jenkins.....	2 to 5	2	2
9. Histology	McFarland	3	24	20
11. Neurocytology	McFarland	3 to 5		7
13. Anatomy	Cowan.....	3	8	2
14. Advanced Histology....	McFarland	3 to 5		12
15. Journal Club.....	Dept. Faculty	1	14	14

Dr. McFarland has continued his work on the Aeolidioidea of the Monterey Bay region and on the California Opisthobranchs collected by the U. S. Bureau of Fisheries Steamer Albatross. During the year his *Report on Opisthobranchiate Mollusca from Monterey Bay and Vicinity* has appeared, published by the *Bureau of Fisheries* in the *Bulletin, Vol. XXV*, 1905.

Dr. Slonaker has continued his investigations on the activity of the white rat as influenced by food conditions.

Mr. H. W. Chappel, Instructor in Hygiene, has completed his investigations on *The Effects of Exercise on the Heart*, the results of which he presented in a thesis for the Master's degree.

O. P. JENKINS,

Professor of Physiology and Histology.

HYGIENE.

The work of the department was carried on during 1905-06 by Associate Professor Snow, Instructor Chappel, Assistants Bolton and Townsend, and gymnasium assistants Coleman, Strong and Stolz.

The courses offered are as follows:

Instructor	COURSE	Number Periods pr. Week	No. of Students	
			1st Sem.	2d Sem.
*Chappel.....	(1) Elementary Hygiene (Lec- tures)	1	138	91
Matzke.....	(1) Elementary Hygiene (Lec- tures)	1	54	50
Snow.....	(2) General Hygiene (Lectures) ..	2	21	
Snow.....	(3) History of Medicine (Lec- tures)	2	51	
Snow.....	(4) Sanitary Legislation (Lec- tures)	2		105
Snow.....	(6b) Prophylactic Measures (Lec- tures)	3-5		8
*Chappel and two assistants.....	a, b. Physical Education	2-3	246	130
Snow.....	Special Work (Laboratory).....	3	3	4
*Chappel.....	c, d. Special Gymnasium Train- ing.....	2-3	54	32
*Bolton, Townsend ..	e. Elementary Physical Educa- tion.....	2	54	46
Bolton, Townsend ..	f, g, h. Advanced Physical Edu- cation.....	3	19	15

* Gynasium Courses.

During the year Assistant Professor Storey resigned. Dr. Storey had been on an extended leave of absence while studying at Harvard University.

W. F. SNOW,

Associate Professor of Hygiene.

ZOOLOGY.

The faculty of the department consisted of Professor Charles Henry Gilbert, Associate Professors George Clinton Price and Harold Heath, Assistant Professor John Otterbein Snyder, Curator Edwin Chapin Starks, and Instructor Walter Kenrick Fisher.

The following courses were given for the year 1905-06:

COURSE	Instructor	Hours per Week		Attendance	
		Lecture	Lab.	1st Sem.	2d Sem.
1. Elementary Zoology	Price	1	6	59	59
2. Invertebrate Anatomy	Heath, assist. by Fisher..	1	6	16	16
3. Invertebrate Embryology..	Heath	1	6	9	
4. Invertebrates (Adv.)	Heath	1	6	3	
5. The Vertebrates.....	Gilbert and Snyder.....	1	6	17	17
6. Comparative Anatomy of Vertebrates.....	Gilbert and Snyder.....	1	9	14	14
7 and 8. Vertebrate Embry- ology.....	Price.....	1	6	22	1
9. Foetal Anatomy.....	Price.....	1	6		10
10. Ichthyology	Starks.....		9	3	3
11. Advanced Ichthyology	Gilbert.....			1	1
12. Journal Club	Gilbert.....			7	7
13. Classification of Vertebrates	Snyder.....			2	2

During the year Professor Gilbert has continued his studies of the Myctophid fishes preparatory to a monograph of that group.

Associate Professor Heath has been engaged in further investigations on mollusks, working especially on a monographic report on the Solenogastres from the Hawaiian Islands and the west coast of North America.

Assistant Professor Snyder has been engaged principally in preparing a series of reports for the U. S. Bureau of Fisheries on the fresh-water fishes of the western United States.

Mr. Starks has published a report on fishes of Peru and Ecuador and has in press a paper on the marine fishes of Southern California. Besides this he has several papers published and in press in co-authorship with Dr. Jordan on fishes of Japan, Port Arthur, the Riu-Kiu Islands and Santa Catalina Islands.

Mr. W. K. Fisher has concluded his studies on California and Alaskan starfishes and has in preparation a monograph of the starfishes of the western coast of North America for the Smithsonian Institution.

During the second semester 1905-06 Associate Professor Heath was absent on leave, spending most of the time at the Biological Station at Naples.

During the summer of 1906 Professor Gilbert, Associate Professor Heath, Assistant Professor Snyder, Mr. Burke and Mr. Sindo co-operated with the U. S. Bureau of Fisheries in an investigation of the fisheries of Japan.

The regular session of the Marine Biological Laboratory at Pacific Grove during the summer of 1906 was under the direction of Associate Professor Price. A total of 57 investigators and students were in attendance.

GEORGE C. PRICE,
Associate Professor of Zoology.

ENTOMOLOGY AND BIONOMICS.

The faculty of the department in 1905-06 was composed of David Starr Jordan, lecturer; Vernon Lyman Kellogg, professor; Mary Isabel McCracken, instructor, and Rennie Wilbur Doane, assistant. Mr. Doane is appointed instructor and Miss Rose Patterson, assistant, from August 1, 1906.

The number of major students was fourteen, of whom six were graduate students. The degrees granted were Doctor of Philosophy, 1; Master of Arts, 3; Bachelor of Arts, 2.

The courses given were as follows:

COURSES	Instructor	Units	Attendance	
			1st Sem.	2d Sem.
1. Elementary Entomology..	McCracken.....	3	15	15
2. Morphology of Insects....	McCracken.....	3	5	8
3. Economic Entomology....	Doane.....	2 or 3	..	2
4. General Entomology.....	Kellogg.....	2	..	41
5. Advanced Work.....	Kellogg.....	2 to 5	10	11
6. Organic Evolution.....	Jordan.....	2	150	150
Sp. Research (Graduate)....	Kellogg.....		4	6

The researches carried on were: An investigation of heredity and variation in the silk worm moth, *Bombyx mori*, (sixth year), parthenogenesis in the silk worm moth, and reflexes and tropisms of the silk

worm moth, by Professor Kellogg; the heredity of sporting melanism and bivoltinism in the silk worm moth, the inheritance of dichromatism in *Lina* and *Gastroidea* (results published), and the inheritance of sport variation and fluctuating variation in *Lina*, by Instructor McCracken; regeneration in aquatic insects, by Assistant Doane; variation in parthenogenetic bees, ants and aphids (results in press) by Professor Kellogg and students Wiltz, Yantis and Wellman; color pattern variation in *Diabrotica* (fifth year,) (results in press), by Professor Kellogg and student Wiltz; the histology and development of the divided eyes in insects (results in press) by student Shafer; the California *Thripidae* (results in press), by student Moulton; California *Cynipidae* or gall insects, by student Patterson; the variation in *Murgantia* and *Hippodamia*, by student Ramsey.

A number of graduated students received appointments during the year as professional entomologists. Dudley Moulton, M. A., was appointed field investigator in the U. S. Bureau of Entomology with his present headquarters in Nebraska City, Nebraska. George A. Coleman, M. A., was appointed forest supervisor (in charge of the Shasta reserve) in the U. S. Forestry Service. C. P. Smith, B. S., was appointed entomologist and forest expert to the Pacific Improvement Company, with headquarters in the Monterey pine forest, near Monterey, California. C. T. Paine, B. S., was appointed assistant to the county entomologist of Santa Clara county, and later to be special field entomologist of the California State Horticultural Commission. G. D. Shafer, M. A., was appointed fellow in entomology in Cornell University.

VERON L. KELLOGG,
Professor of Entomology.

GEOLOGY AND MINING.

The department faculty consisted of Professors John Casper Branner and James Perrin Smith; Associate Professor John Flesher Newsom; Assistant Professors Dorsey Alfred Lyon and Austin Flint Rogers, and Instructor Galen Howell Clevenger.

Courses given in the Department of Geology and Mining during the year 1905-06:

Instructor	COURSE	Hours Per Week	Students Both Semesters
Branner	1. Elementary Geology	3	234
Branner	2. Elementary Geology	2	62
Branner, Crandall	3. Topographic Geology	4	13
Rogers, Crandall, Anderson	4. Field Geology	5	13
Rogers, Clark	5. Mineralogy	6	58
Rogers	6. Petrography	6	39
Smith	7. Systematic Paleontology	4	15
Smith	8. Paleontology (investig'n)	2-5	7
Lyon, Clevenger	10a. Mining	4	22
Lyon, Clevenger	10b. Mining	3	14
Lyon	11a. General Metallurgy	4	18
Lyon, Clevenger, Kellogg	11b. Metallurgy Laboratory	2	6
Lyon, Clevenger, Kellogg	11c. Metallurgy of Constructive Materials	3	40
Lyon, Clevenger	11e. Metallurgy (special)	3-5	17
Rogers	12b. Mineralogy (investigation)	1-5	1
Smith	13. Advanced Paleontology	1	2
Branner	14. Special Courses in Geology		2

Dr. Austin F. Rogers, assistant professor of mineralogy and petrography, was added to the department faculty August 1, 1905, and all the work in mineralogy and petrography was put in his hands.

The one-story building for mineralogy (rooms 360-365, Outer Quadrangle) was completed, furnished, and occupied for the first time this year. The addition of Mr. Rogers to the faculty and the partial equipment of the mineralogical laboratory has greatly strengthened this work in the department.

Provision was made by the Trustees for the addition of Mr. John Crawford, Jr., to the faculty as instructor in metallurgy, but before the beginning of the current year Mr. Crawford resigned the position. The work he was to have done has been provided for by the appointment of R. S. Kellogg and L. J. Mayreis.

Vacation work: Mr. Branner spent most of the vacation in collecting data regarding the late earthquake and in directing the work of his assistants. He also made a trip to Coon Butte, Arizona, for the purpose of seeing the phenomena of a crater believed to have been made by a large meteor striking the earth. In June he attended the meeting of the American Association for the Advancement of Science held at Ithaca, N. Y., and delivered before that body an address upon the San Francisco earthquake.

Mr. Smith spent the first six weeks of the summer vacation collecting quaternary and pliocene fossils in Southern California. The remainder of the summer he spent in collecting triassic fossils and working on triassic stratigraphy for the U. S. Geological Survey in Nevada and Idaho, assisted by Mr. L. M. Rosenberg.

Mr. Newsom was absent during the year on sabbatical leave, and spent part of his time in the study of economic geology and mining in Alaska.

Mr. Lyon spent most of the vacation at Portland, Oregon, in connection with the electro-metallurgical work being done there by the U. S. Geological Survey.

Mr. Rogers had charge of the work in field geology during the first six weeks of the vacation. The latter part was spent in the study and collection of minerals in Southern California.

Field Geology: The field work was carried on this year under the immediate direction of Mr. Rogers, assisted by instructors Roderic W. Crandall and Robert V. Anderson. The work was partly in finishing up the geology of the Mount Hamilton sheet, and partly in working out the geology of the Pleasanton sheet. Thirteen students took this work, which lasted from May 25th to July 12th, 1906, students being required to work ten hours a day. The class was divided into two parties. Large collections of rocks and fossils were made in the progress of this work. The collections and geology of the region will be described by Professors Newsom and Rogers, and their assistants, Messrs. Crandall and Anderson.

Topographic Geology: Under the direction of Mr. Branner, Mr. Crandall supervised the topographic geology. The work was done mostly in the vicinity of Woodside, west of the University. Thirteen students were enrolled in this class.

Paleontology: The appointment of Mr. Rogers to have charge of work in mineralogy and petrography has left Mr. Smith free to devote his whole time and attention to work in paleontology.

Rooms: The new geology building at the southwest corner of the outer quadrangle was just finished and ready for occupancy when the earthquake occurred. It was so seriously damaged that it cannot be used for the present, and the temporary quarters in the Inner Quadrangle must continue to be occupied by geology, mining, paleontology, the library and all the general collections until the new building is repaired.

Library: Mr. Branner's private library remains in the building occupied by geology, room 80-84. The books and pamphlets especially devoted to mineralogy and petrography, however, have been placed in the mineralogy building of the Outer Quadrangle for the greater convenience of students of those subjects.

Scientific Work: The members of the departmental faculty have all been actively engaged during the year in work along the lines in which they are especially interested. Messrs. Branner and Newsom and Ralph Arnold (Ph. D. 1904) have finished the Santa Cruz folio for the U. S. Geological Survey, and it is now in the hands of the printer. The second edition of Mr. Branner's bibliography of clays and ceramic arts was published by the American Ceramic Society in April, 1906. After the earthquake of April 18th, Mr. Branner was appointed, by the Governor, a member of the State Earthquake Commission to study and report upon matters connected with the shock, and he has given much of his spare time to this work.

Mr. Smith completed a paper on the paragenesis of the minerals in the glaucophane rocks of California which is to be published by the American Philosophical Society. Another important paper by him upon American Triassic cephalopod genera was published by the U. S. Geological Survey as Professional Paper No. XL. He is now at work on a monograph of the American Triassic faunas for the U. S. Geological Survey.

Mr. Newsom has spent most of his vacation for several years upon the geology of the Santa Cruz quadrangle referred to above. This work was finished during the past year. After the completion of that quadrangle he took up the geology of the Mount Hamilton sheet, and, with Mr. Roderic W. Crandall, is preparing a report upon the geology of that area.

Mr. Rogers has prepared a paper on the minerals of the Joplin district of Missouri which will soon be published in one of the reports of the University Geological Survey of Kansas. He has also examined a number of interesting mineral occurrences and has papers in preparation on California minerals, pyrite crystals from Bingham, Utah, and aegirite and riebeckite rocks from Oklahoma.

In addition to his technical publications, Mr. Rogers has devised and published a set of tables for the identification of minerals in a powdered form that makes possible the determination of forms of minerals not hitherto attempted in class-room work.

Mr. Lyon in addition to his regular instructional work has been engaged in an investigation of processes for the electric smelting of copper. He was assisted in this work by R. N. Park of 1905.

Mr. Clevenger has been at work upon an investigation of a method for the recovery of gold and silver from copper bottoms. His results are of much economic importance, and are given in part in his thesis for the degree of metallurgical engineer.

Positions for Students: The demand for graduates prepared in this department to do work upon the U. S. Geological Survey and to fill positions as instructors in colleges and universities is far beyond the supply. The same thing is true of the demand for competent graduates to do industrial work in mine and metallurgical establishments. Of the men graduating from this department since May, 1905, W. O. Clark was for some time employed by the U. S. Geological Survey, and is now acting head of the department of geology in the Agricultural and Mechanical College of Washington.

R. V. Anderson was instructor in field geology in this department during the summer and is now assistant geologist on the U. S. Geological

Survey at Portland, Oregon. The other graduates are engaged in economic work, and they all have desirable positions.

J. C. BRANNER,
Professor of Geology.

CIVIL ENGINEERING.

The teaching force of the department for the year was: Charles D. Marx, Leander M. Hoskins, and Charles B. Wing, professors; John C. L. Fish, associate professor; Hubert H. Hall, instructor; Louis J. Mayreis, assistant.

Owing to the absence of Professor Fish, the courses in railroad location and railroad construction were not given in 1905-06. The work in elementary and railroad surveying was carried by Mr. H. H. Hall, who was appointed instructor at the beginning of the year. Student assistant L. J. Mayreis in addition to his drafting room work, gave the two hour lecture course in descriptive geometry in the second semester. The needs of the department for the development of the work will be touched upon in a special report.

A tabulated statement of the courses given in the Department of Civil Engineering during the year 1905-06, is as follows:

Instructor	COURSE	No. of Credit Hrs. per Week	Number of Students	
			1st Sem.	2d Sem.
Mayreis and assist.	Linear Drawing, 1a.....	1	139	6
Mayreis and assist.	Descript. Geom., 1b.....	1-4	203	125
Hall and assist....	Elem. Survey, 4a.....	5	39	34
Hall and assist....	Elem. Survey, 4b.....	2	8	2
Hall and assist....	Railroad Survey, 6a.....	5	0	32
Wing and assist....	Mech. of Materials, 2a.....	5	67	0
Wing.....	Elem. of Design, 8a.....	3	20	0
Wing.....	Elem. of Design, 8b.....	5	0	18
Wing.....	Elem. of Design, 8c.....	3	3	23
Wing.....	Railroad Bridges, 9.....	5	10	9
Hoskins.....	Hydraulics, 3.....	2	0	60
Hoskins.....	Hydraulic Motors, 3b.....	2	31	0
Marx.....	Water Supply, 12.....	5	10	0
Marx.....	Sanitary Eng., 13.....	5	0	9

CHARLES D. MARX,
Professor of Civil Engineering.

MECHANICAL ENGINEERING.

The teaching force in the Department of Mechanical Engineering for the year 1905-06, was as follows:

W. F. Durand, Professor of Mechanical Engineering; G. H. Marx, Associate Professor of Machine Design; W. R. Eckart, Assistant Professor of Experimental Engineering, S. J. Dennis, Instructor; J. E. Peterson, Foreman of Forge; J. Stack, Foreman of Woodshop; J. B. Liggett, Foreman of Foundry; T. Palmateer, Foreman of Machine Shop; R. A. Hudson, Assistant in Drawing.

The classes taught and numbers in attendance are shown by the following tabular presentation:

Instructor	SUBJECT	Hours Credit	Number in Class	
			1st Sem.	2d Sem.
Durand.....	M. E. 6, Heat Engines.....	3	62	35
"	M. E. 9, Pumping Machin'y.	2		32
"	M. E. 10, Power Plants	2	12	
"	M. E. 11, Seminary.....	1		11
Marx, G. H.....	M. E. 3	5		40
"	M. E. 4	4	12	6
"	M. E. 5	2	4	8
Eckart	M. E. 8	3	20	36
Peterson.....	M. E. 1c.....	2	60	45
Stack	M. E. 1a, b.....	3	126	99
Liggett.....	M. E. 1d.....	3	32	36
Palmateer.....	M. E. 1e.....	3	39	42
Hudson	M. E. 2	2	43	47

During the first semester 1135 student credit hours of instruction per week were given by an instructing corps of eight men or about 142 student credit hours per instructor on the average.

The corresponding figures for the second semester are 1243 student credit hours by the same corps and an average of 155 per instructor.

These numbers are obtained by multiplying the number of credit hours in each course by the number of students attending such course, and they thus serve in a rough way to show the total bulk of instruction given and the average per instructor.

Prof. A. A. Browne, who had formerly held the position of Assistant Professor of Mechanic Arts and Superintendent of the Shops, was absent during the year under serious illness, from which he died during the spring.

The duties of Prof. Browne in so far as they relate to the general administration of the shops have been carried by the head of the department in the same manner as for the preceding year.

The purposes which were referred to in the report for this department for the year 1904-05 have been steadily held in view during the past year and substantial progress has been made in many particulars. The coordination of the various lines of work has been well worked out and the curriculum as offered at present constitutes in the opinion of the department faculty a well-balanced course of instruction in this branch of engineering work. The improvement in the shop work has been made especially effective in the foundry by the inauguration of the lecture system and many improvements in the details of the illustrative work. Like changes will be introduced in the other shops as rapidly as means and opportunity may serve.

As a result of the earthquake of April 18th, the work of the year was brought to an abrupt close with certain important courses unfinished. The necessary connection between such courses and others of the present year which may require them as preparation was made at the opening of the current year, and we may trust that no serious loss will result to the course of study. The equipment of this department suffered but slight damage with the exception of the woodshop, and the new engineering building, which it shared with the departments of Civil and Electrical Engineering.

Reference to such changes and readjustments as were occasioned by earthquake damage will find a more natural place in the report for the current year and will need no further mention at the present time.

W. F. DURAND,

Professor of Mechanical Engineering.

ELECTRICAL ENGINEERING.

The officers of instruction in the Department of Electrical Engineering during the year 1905-06 were:

Harris J. Ryan, Professor; Kenneth L. Curtis, Instructor; Samuel B. Charters, Instructor.

The following table shows the courses of instruction, corresponding instructors and numbers of students registered during the first and second semesters:

Instructor	COURSE	Hours Credit	Number in Class	
			1st Sem.	2d Sem.
Ryan.....	E. E., 1. Lectures.....	3	29	
	E. E., 3a. Lectures....	3	8	5
Curtis.....	E. E., 2a. Text.....	2	28	26
	E. E., 3c. Design.....	2		5
Charters.....	E. E., 3c. Design.....	2	8	
Ryan and Charters	E. E., 2b. Laboratory.....	2		26
	E. E., 3b. ".....	2		5
Curtis and Charters	E. E., 3b. ".....	2	8	
	E. E., 2b. ".....	2	28	
	E. E., 1. ".....	1	29	
Ryan, Curtis, and Charters.....	E. E., 5. ".....	1	8	5

Electrical Engineering 1 is an abridged course in the industrial application of electricity intended for non-electrical engineering students. The students who take it are in Civil and Mechanical Engineering, or are Mining and Geology majors.

Electrical Engineering 2 a-b is a course for the instruction of third year Electrical Engineering students in the elements occurring in electrical machinery, operating appliances and power transmission. The course was given by means of class and text-book instruction (2a) and laboratory demonstrations, (2b).

Electrical Engineering 3 a-b-c is a course in the fundamental technology of Electrical Engineering for fourth year students in Electrical Engineering.

Electrical Engineering 5. The seminary for fourth year students in Electrical Engineering undertook a review and discussion of the transactions of the American Institute of Electrical Engineers, the presentation of biographical sketches of eminent engineers by the officers of instruction, oral reports, and discussions of topics of their own selection by the students.

HARRIS J. RYAN,
Professor of Electrical Engineering.

APPENDIX II

REPORTS OF COMMITTEES

ATHLETICS.

The disproportion between the total number of students in the University and the number taking part in the recognized University sports, which I have referred to in previous reports, has not materially changed. The lists of candidates for the intercollegiate contests between the University of California and Stanford University show the following figures:

Freshman Football	50	names
Varsity Football	43	"
Baseball	22	"
Track and Field	80	"
Tennis	15	"
Rowing	22	"

While these figures are to a certain extent mis-leading—the number of candidates for varsity football, for example, being considerably in excess of 43—they still serve as a rough criterion of the number of men in the University who take an active part in the University sports. In respect, however, to the amount of time given to participation in any sport, the figures say nothing, but represent very different values. For freshmen football, for example, the season is very short—barely six weeks, while in track and field sports many of the men are active the greater part of the academic year. Twenty-five of the above total of 232 enter into two forms of sport, but the entire number of those getting the amount and variety of outdoor exercise in the form of sport, which should be the portion of every student in the University, is a minority of those whose names appear on the lists.

In addition to the intercollegiate activities, there is a small amount of sporadic baseball, and of golf, and tennis playing, throughout the year; but taken all in all, it may be safely said that considerably less than a quarter of the men take part in the recognized sports of the University, and of this fraction, hardly half are active through the year.

That this state of affairs was due in part to the limit of one athletic field to each sport is undoubtedly true, and it was to remedy this that the Committee sought for and obtained from the Board of Trustees the tract now given to the athletic fields. The development of these fields for general athletic purposes is dependent on the resources of the student body, and it is hardly probable that, from these sources, the students in the near future will be able to grade and surface all the grounds necessary for general use.

Supposing, however, that athletic fields sufficient in number for general use had been prepared, it is not clear that the desire of the Committee of having every student take part daily in some form of sport, would be realized without some encouragement and stimulus on the part of the University. The members of the committee have from time to time been struck with the small degree of proficiency in athletic games of a very considerable number of the students. The reason for this is fairly clear: in most of the high schools and in the upper grades of the grammar schools, there is to be found the same unhealthful over-specialization of sports which exists in most American colleges and universities.

In school and college alike a naturally select few represent the athletic activities of the institution, whilst the bulk of the students or pupils are relegated to the position of the bleacher chorus. Consequently it is at least a matter for discussion whether, to make sport general, it will not be necessary for the University through the medium of the gymnasium to instruct students at large in the several athletic games.

The Rugby Game.—Through the introduction of Rugby, so called, into the University, the Committee hopes for a greater participation in football. The question of the objectionable tendencies of the game of football, heretofore played in American colleges, has too often been thrashed out to need repetition here. In the contest of last November, between California and Stanford, the game was probably seen at its best. But at its best it is still essentially a coaches' game, and what has been termed a military game, which from its nature could hardly become a general college sport. As a matter of fact the football field is practically deserted after the big game, in November, though the winter months in this climate are best fitted for playing such a game as football. In this connection it is fitting to observe that many of the bodily ills popularly supposed to result from intense athletic exertion, e. g., the "athletic heart," are, in the opinion of Dr. W. F. Snow, of the Department of Hygiene, to be attributed to the sudden cessation of all exercise, common in the colleges of the United States, after a season of severe exertion.

The recommendation of the Rugby game to California and Stanford by the Conference appointed by yourself and President Wheeler of the University of California, was based on the preference expressed by a committee of experts, acting in an advisory capacity to the Conference, for the Rugby game as opposed to the so-called "revised game."

In a circular sent out from this institution to the principals of high-schools throughout the State, Rugby football was recommended as "a game which for many years had been tested by an athletic people; a game, which, while rough, is not necessarily dangerous to life, one which does not put a premium on unfair play; a game which calls for a higher degree of football skill on the part of the individual player and which therefore places less of a premium on mere weight and brute force, than is the case with the game played in this country."

At any rate the old game has not for years been carried on as a sport anywhere in this country, whereas Rugby football is played all over the globe for pleasure and recreation.

Relations with Other Colleges than the University of California.—This University has a very strict agreement with the University of California in the matter of eligibility of players on 'Varsity teams, but with other universities and colleges on this coast we have no such agreement. To prevent the discouragement to amateur standards which this condition engendered, the Presidents' Conference recommended that the two Universities enter into a "gentlemen's agreement" as regards amateur and student standing with all competing institutions. This recommendation was adopted by both Universities.

Baseball.—In April last, on behalf of the Committee on Athletics, I wrote to Colonel Edwards, Chairman of the Athletic Committee of the University of California, asking the opinion of his committee regarding the desirability of discontinuing intercollegiate baseball for a period of at least one season. I said:

"For a good many years, no season of baseball has passed without a record of unsportsmanlike conduct by either one or both of the Universities, and despite the special effort made this year to place the game on the same level of fair play that we have in track and field and in football, we seem to be as far away from the attainment of our end as ever. It makes no especial difference to the general situation

whether California or Stanford be guilty of unfair play or rowdyish conduct; the outcome is necessarily to weaken the good spirit that prevails in the other sports and to diminish the general kindness of feeling between the student bodies of the two Universities. Incidentally the example set by the universities of conducting a sport in a spirit of rowdyism has a harmful effect on the lower schools."

This matter will probably be taken up in a conference this year, and unless evidence is forthcoming that an earnest effort will be made to bring the game up to the level of the other sports, it is best to abolish it.

Women's Sports.—The number of women taking part in outdoor sports is proportionately less than the number of men. The facilities for outdoor sports for women at this University have been scanty: in addition relatively few women are skilled in such sports when they enter. During the past, the women from their own resources have planted a hedge along the southern boundary of their grounds and set a large number of trees. With proper care these plants should within the next two years enclose the tract sufficiently to ensure privacy. But, the co-operation of the University through the gymnasium will probably be necessary to make outdoor sports general among women. At present the women are paying for instruction from their student body assessments; but their revenues are too small to provide instruction for all the women who should enter into outdoor sports and recreations.

FRANK ANGELL,

Chairman.

DELINQUENT SCHOLARSHIP.

The new scholarship regulations approved by the Academic Council in 1904-05 went into effect in 1905-06. In the main these regulations were only a codification of the established practice of the Committee as a result of long experience. In the nature of the case certain definite and arbitrary regulations and restrictions are found necessary, but it has never been the purpose of the Committee to apply regulations in a purely mechanical way. A regulation, for example, which makes failure to secure a specified number of units of credit in a given semester an automatic severance of the student's connection with the University has much in its favor. To weigh each case as carefully as possible, having in mind particular circumstances and the welfare of the individual student as well as the university standards, requires much time and patience and with results not always encouraging or satisfactory. At the same time it is an undertaking and opportunity which the University can hardly put aside. Much time has been given by the Chairman to individual conferences with students with a view to the better understanding of the causes of failure and poor work, and to giving such advice and direction as the circumstances seemed to demand.

Two propositions the Committee has taken as axiomatic, (1) that the University is not the place for those who cannot do its work, (2) nor for those who can but will not or do not accomplish the work assigned. Heretofore the first semester has been considered as a good test of the capacity and purpose of the entering student. The regulations as newly formulated have modified this policy to the extent of regarding this first semester's work as less conclusive in its results. Thus, after the first semester, every student, to retain his place in the University, is expected to make at least two-thirds of the work for which he is registered; but the new student will ordinarily not forfeit his chance if he makes one-third. The experience of the year indicates that this latter is perhaps a greater concession than the circumstances require, and the Committee has agreed to recommend that the "one-third" be made "one-half."

Not a little consideration has been given, during the year, to the question of a more effective elimination of students whose work is continuously poor from lack of ability or want of purpose and application. No satisfactory solution of the problem has been reached as yet.

The following summaries give the action of the Committee in cases of delinquent scholarship as compared with the previous year:

<i>First Semester:</i>	1904-05	1905-06
Mid-semester action:		
Notice of subjects	23	72
Warned	73	—
Suspended	2	1
End-semester action:		
Warned	78	65
Suspended	60	58
Leave of absence over one semester	9	6
<i>Second Semester:</i>		
Mid-semester action:		
Notice of subjects	48	52
Suspended	4	6
End-semester action:		
Warned	33	6
Suspended	38	47
Leave of absence over one semester	5	2

C. H. GILBERT,
Chairman.

PUBLIC HEALTH.

The members of the Public Health Committee for 1905-06 have been Professors Snow, Gilbert and Durand.

The report of the committee's administrative work for the year is practically a repetition of the statistical details given in the report for 1904-05, and may be largely omitted.

In reply to the question asked of freshmen, "Do you have reason to believe your University work and activities will be interfered with in any way by the condition of your health?" 579 answers were negative, 21 answers were affirmative, 3.5% affirmative as compared with 16.3% for 1904-05.

This apparent improvement in the general health of the entering class is further suggested by the comparative figures summarizing the medical examinations:

Students noted	as below average	average	above average
1905-06 (600 examinations)	7.1 (43)	86.8 (520)	6.1 (37)
1904-05 (532 examinations)	20. (106)	40. (212)	30. (159)

The petitions granted for a limitation of registered work on account of ill health show the following summaries:

	1905-06	1904-05
(a) Students petitioning for less than 13 hours	56	41
(b) Students petitioning for reduction of hours	105	96
(c) Students petitioning for leaves of absence	53	56
	214	193

It should be stated that each petition on account of illness is referred to the chairman of this committee for investigation and approval before presentation to the Registration Committee.

The distribution of these petitions over the months of each semester has been as follows:

	Men	Women	Total
September	12	34	46
October	13	15	28
November	16	11	27
December	11	5	16
January	16	28	44
February	10	15	25
March	13	7	20
April	3	—	3
May	—	—	—
	99	115	214

By classes the distribution has been:

	First semester	Second semester	Total
First year	42 (25 M., 17 W.)	20 (13 M., 7 W.)	62
Second year	32 (18 M., 14 W.)	16 (12 M., 4 W.)	48
Third year	21 (6 M., 15 W.)	7 (6 M., 1 W.)	28
Fourth year	9 (0 M., 9 W.)	8 (1 M., 7 W.)	17
Totals	104	51	

The report on boarding and rooming conditions for 1904-05 is applicable with minor modifications to the situation for 1905-06.

The statistics given under the heading, "Health Control of Athletics and Other Organized Student Activities" for 1904-05, are also fairly representative for 1905-06. The fact should be emphasized again, however, that while we have at Stanford excellent machinery for controlling a student's gradual approach to maximum physical efficiency for the final big games of the season, we *do not have* the machinery for controlling his *gradual return* to the ordinary physical efficiency demanded by routine university life.

The medical approval of each candidate for an athletic team supplementing the trainer's keen judgment of his condition from day to day, ensures him against unwise indulgence in athletics, while the instruction of the coaches and student body sentiment give direction and purpose to his work; but all these influences are practically withdrawn over night at the very period of his greatest need. Nature aided by the pressure of sedentary work promptly reduces him from a condition of excessive strength to one of excessive flabbiness and the chances are many that he will lay the foundations of future ill health during this period of physical stagnation. From the health point of view this post-season period constitutes the great danger in university athletics and to it belongs much of the criticism based on statistics of defective hearts and shattered nervous systems among "varsity" men.

It is for these reasons that this committee endorses the efforts of the Athletic Committee in developing attractive and varied sports throughout the college year, not only for the men but for the women of the University.

The daily consultation hour of the committee is utilized by three groups of students:

1. Students with minor illnesses or accidents, requiring general advice or emergency attention.
2. Students with acute diseases requiring immediate medical and hospital care, or reference to specialists.
3. Students with ill-defined chronic conditions which seriously interfere with University efficiency.

The students comprising this latter group do not willingly go to the practicing physicians for treatment and many of them are attempting with indifferent success to carry out instructions from a distant family

physician. The committee attempts in these cases to keep the family physicians and parents informed of the local conditions, and substitutes in place of office consultation advisory visits to the rooms of these students in order to carefully study the actual living conditions in each case. Some practical solution of the situation generally presents itself when all these factors are at hand. Invaluable work has been done during this year in this way by the Committee's medical assistant, Dr. Edith H. Matzke.

Practically all the students developing serious illness are cared for at the Guild Hospital. The following statistics are of interest in showing the usefulness of the Guild and indicating the variety of illnesses which the students ask hospital care for:

The student cases admitted to the Guild Hospital during 1905-06 numbered 234, tabulated in general groups as follows:

I. General Medical Cases	177
1. Respiratory organs:	
a. Nose, throat, larynx (except diphtheria)	70
(severe "colds," tonsillitis, laryngitis)	
b. Lungs and chest	22
(Bronchitis, pleurisy, pneumonia.)	
2. Digestive organs (except operative appendicitis)	14
(Gastritis, gastro-enteritis, acute diarrhoea, constipation, and intoxication)	
3. Other organs collectively	61
(Heart, kidneys, skin, muscles, nervous system)	
4. Special sense organs	10
(Eye and ear (not including refraction cases))	
II. Surgical Cases	47
5. Accidents and minor surgical cases	36
(Sprains, minor fractures, abscesses)	
6. Serious surgical cases	11
(Appendicitis, general operations under anaesthesia)	
III. Communicable Diseases	10
7. Isolation cases	8
(Typhoid fever, malaria, chicken-pox)	
8. Quarantine cases	2
((Diphtheria, mumps)	

The popular diagnoses of the important illnesses are here given to illustrate more definitely the range of diseases of 1905-06.

Distribution by months of cases in preceding tabulation:

GROUP	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Total
1. Respiratory Organs..	2	6	19	19	8	16	14	5	2	1	0	0	92
2. Digestive Organs....	0	0	8	0	2	1	0	1	1	1	0	0	14
3. Other Organs.....	1	2	7	2	9	5	10	13	10	2	0	0	61
4. Sense Organs.....	0	2	0	0	0	4	2	1	1	0	0	0	10
5. Minor Surgical.....	0	0	4	4	5	5	5	4	8	1	0	0	36
6. Surgical Operations..	1	1	3	1	1	0	2	1	1	0	0	0	11
7. Isolation Cases.....	2	2	0	0	1	1	0	1	0	1	0	0	8
8. Quarantine Cases....	0	0	0	1	0	0	0	1	0	0	0	0	2
	6	13	41	27	26	32	33	27	23	6	0	0	234

During the year the hospital was thrown open to non-member patients at \$25 per week and certain special charges. The following figures are of interest.

Number of Patients		Days of Nursing	No. of Operations	Hospital Charges
Members,	230.....	1322	16	\$2137.95
Non-Members,	102.....	950½	42	3920.56
Total,	332.....	2272½	58	\$6058.51

- The approximate cost of operating the hospital for the year has been :
1. For provision, house-keeping and general maintenance\$ 4850.15
 2. For nursing, drugs, and general administration..... 5264.57
 3. For alteration and equipment 1015.18

Estimated total expenditure.....\$11129.90

The total income from membership fees (\$3642.00) plus hospital charges amounted to \$12,480.51, leaving a surplus of \$1,350.61 for the year, provided all money due the association should be paid.

W. F. SNOW,
Chairman.

GRADUATE STUDY.

The Committee on Graduate Study has endeavored to formulate the regulations governing the granting of advanced degrees in such a way as to protect University interests and to make the conditions for obtaining such degrees as nearly uniform as possible.

We have recommended to the Academic Council two candidates for degree of Doctor of Philosophy, Messrs. W. K. Fisher and J. M. Aldrich, the former in Zoology, the latter in Entomology. In both cases, after the requirements of the department had been met and a satisfactory thesis presented, the Committee (constituted as prescribed in the Register for 1905-06, p. 78) conducted an oral examination.

For the degree of Master of Arts we have recommended the following candidates, our recommendation in each case being based upon the commendation of the department:

In Latin, Helen R. Dowart, Peter Homer Hammond, Lillie Elizabeth Virtue Lloyd.

In English, Anna Pearl Cooper.

In History, William Leon Glascock.

In Mathematics, Henry Walter Stager, Charles Mantor Titus.

In Physics, Grace Nims Brown.

In Chemistry, Paul W. Avery, Joseph Evans Dunipace, Fred Finley Fitzgerald.

In Physiology and Histology, Halbert William Chappel.

In Entomology, George Albert Coleman, Dudley Moulton, George Daniel Shafer.

For the degree of Engineer we have recommended the following candidates:

In Metallurgy, Galen Howell Clevenger.

In Mechanical Engineering, Clair Leverett Peck.

In Electrical Engineering, Kenneth Livermore Curtis.

For the remaining degree, that of Juris Doctor, we have as yet formulated no regulations, but have reported to the Academic Council the recommendation of the Department of Law in the case of the following candidates:

Charles Ludwig Firebaugh, John Leslie Johnston, Howard Milton Lewis, Frank Roehr and Micajah Anderson Thomas, Jr.

A. T. MURRAY,
Chairman.

LITERARY CONTESTS.

The work of this committee for the academic year 1905-06 has followed the lines customary in recent years. In the first place, it has had control of official literary contests, two in number, the competition for the Bonnheim prize within the University, and the competition for the Carnot medal with representatives of the University of California. No significant changes have been introduced into the procedure or management of either of these events. Reference to the committee's report for the preceding year will give particulars with respect to these matters. In the second place, the committee has had supervision of the student literary contests. One new point of interest was the giving of a sanction for new arrangements between the students of this University and the University of California to govern their intercollegiate literary contests. It need only be said here that several changes were made, indicative of a good spirit of comity between the students of the two universities. The actual conduct of intercollegiate literary contests was interrupted by the earthquake. Although competitions had been held and the student representatives of the University had been chosen, none of the usual intercollegiate debates were held.

C. A. DUNIWAY,
Chairman.

APPENDIX III

REPORT OF THE REGISTRAR.

The total number of students in attendance in 1905-06 was 1786. Of these 1069 were students who had previously been in attendance, 717 were new students. As compared with 1905-06, there was an increase of 87 old students and 131 new students.

Statistics of Registration, 1901-1906.

	'01-'02	'02-'03	'03-'04	'04-'05	'05-'06
Old students	906	909	970	982	1069
New students	389	574	515	586	717
	<u>1295</u>	<u>1483</u>	<u>1485</u>	<u>1568</u>	<u>1786</u>
Percentage of old students returning...	65.2	70.1	65.4	66.1	68.1
From California	1047	1171	1119	1188	1341
From other states	248	312	366	380	445
Percentage from other states.....	19.1	21.	24.6	24.2	24.9
<i>Average age at Matriculation:</i>					
Graduates	28.3	28.6	27.8	29.2	30.
Adv. Standing	23.3	23.6	22.4	22.4	22.71
Freshmen	20.1	20.8	20.6	19.8	20.09
Specials	25.9	25.8	24.5	25.1	24.16
<i>Age of Freshmen at Matriculation:</i>					
Under 17	8	3	9	9	11
17 to 18	26	38	45	40	45
18 to 19	46	78	88	81	112
19 to 20	50	60	77	96	152
Over 20	82	174	168	161	161
	<u>212</u>	<u>353</u>	<u>387</u>	<u>387</u>	<u>481</u>

Statistics of Entering Class, 1905-06:

	Number Entering	Number Returning 1906-7	Dropped by Scholarship Committee
From Colleges :			
Graduates.....	40	3 (7.6%)	0
With advanced standing	134	57 (42.5%)	6 (4.4%)
Without advanced standing	47	24 (51. %)	4 (8.5%)
	<u>321</u>	<u>84</u>	<u>10</u>
From Preparatory Schools:			
On recommendation (wholly or mainly)			
In full undergraduate standing.	226	317 (72.8%)	41 (12.9%)
In partial underg'uate standing	201		
Wholly on Examination :			
In full undergraduate standing.	0		
In partial underg'uate standing	6		
	<u>435</u>		
As special students	61	27 (44.2%)	10 (16.4%)
	<u>717</u>	<u>428 (59.6%)</u>	<u>61 (8.5%)</u>

Classification by Major Subjects:

	1903-04	1904-05	1905-06
Greek	14	10	16
Latin	60	72	74
German	74	88	101
Romanic Languages	43	43	44
English	246	226	222
Philosophy	5	3	4
Psychology	3	5	7
Education	23	21	27
History	98	93	104
Economics	79	90	93
Law	212	209	308
Drawing	23	19	30
Mathematics	31	33	36
Physics	9	10	11
Chemistry	77	93	107
Botany	20	18	22
Physiology	73	71	66
Zoology	27	39	32
Entomology	12	12	14
Geology & Mining	118	124	127
Civil Engineering	85	118	138
Mechanical Engineering	49	71	76
Electrical Engineering	94	110	127
Total	1485	1568	1786

Registration of Studies:

Fifteen units constitute a normal semester's work. Following was the actual registration during 1905-06:

	Number of students.	
	1st semester	2d semester
For 1 unit	0	0
2	1	4
3	5	4
4	1	5
5	1	1
6	4	8
7	5	3
8	3	6
9	25	18
10	32	43
11	36	58
12	80	62
13	185	186
14	290	214
15	488	391
16	233	246
17	247	161
18	89	147
19	1	1
Above 19	0	0

Petitions acted upon by Committee on Registration, 1905-06:

	1st semester	2d semester
Total number of petitions acted upon....	1531	677
To change registration by dropping subjects or taking up new subjects or both	1162	364
To change major subject.....	105	33
To change for fewer than 13 units....	155	160
To register for more than 18 units....	8	8
For leave of absence.....	75	64
Miscellaneous	75	25

Statistics of Graduation:

The total number of degrees conferred in 1905-06 (including 19 conferred September 7, 1906) was 219, distributed as follows:

	Ph.D.	J. D.	A. M.	Eng'r	LL. B.	A. B.
Greek.....						2
Latin.....			3			15
German.....						17
Romanic Languages.....						6
English.....			1			35
Philosophy.....						2
Psychology.....						5
Education.....						9
History.....			1			10
Economics.....						20
Law.....		5			4	5
Drawing.....						4
Mathematics.....			2			2
Physics.....						14
Chemistry.....			3			1
Botany.....						10
Physiology.....			1			4
Zoology.....	1					3
Entomology.....	1		3			13
Geology and Mining.....				1		7
Civil Engineering.....				1		4
Mechanical Engineering.....				1		3
Electrical Engineering.....						
	2	5	14	3	4	191

FACULTY LEGISLATION.

The Articles of Organization require that "all general University regulations, statutes, and rules shall be initiated in and passed by the Academic Council." In practice the Council works largely through the Executive Committee and other standing committees. Few measures are brought to the Council without having first received the consideration of one or more standing committees. Changes of detail, not affecting the policy of the University, become effective when authorized by the Executive Committee, but may be reviewed or negatived by the Council of its own motion.

Admission of Women. By the Founding Grant of the University, as amended by Mrs. Stanford in 1899, the number of women attending the University as students at any one time, is limited to 500. This limit was

first reached in 1902. Thereafter women were refused admission as special students, and since 1904 they have not been allowed to enter in partial undergraduate standing. These restrictions sufficed until 1905 when the limit was again reached, and it became necessary to devise other means for making effective the charter limitation. Prolonged consideration was given to this matter, first by the Committee on Admission and Advanced Standing and then by the Executive Committee. Two general plans were proposed. The first undertook to meet the difficulty by providing for a gradual raising of entrance requirements for women as the necessities of the case should demand. This plan would imply ultimately the cutting off of the entire Freshman class and possibly of the Sophomore class also. The second plan proposed an eligible list of those candidates who should fulfill the regular University requirements for undergraduate standing, precedence on this list to be determined by order of application. Graduate students were to be exempt from the necessity of formal application, and undergraduates once matriculated could continue until graduation without renewal of application. Both plans affirmed the general principle that the method adopted for limiting the number of women ought to be such a method as it would be desirable to adopt for limiting the number of men should such limitation become the policy of the University. The question at issue took this form: Shall the University prefer students coming with advanced standing, to the gradual elimination, if necessary, of freshmen and sophomore classes, or, does the best interests of the university work demand the maintenance of the four undergraduate years.

In favor of the first plan it was urged (1) that it is to the University's interest to emphasize advanced work; (2) that to a considerable extent it is now possible to anticipate the first year's work through extra entrance units, normal school credentials, etc; (3) that there is already the beginning of a movement toward the six-years' high school course, and that the adoption of this plan would stimulate this movement as well as the general growth and strengthening of the small colleges. In favor of the second plan the following considerations were emphasized: (1) The high schools cannot properly undertake work equivalent to the freshman year of the University; they are not prepared to give advanced work, the standard of instruction is not so high, and the point of view is not that of the University; (2) the work done in the smaller colleges, even in the freshman year, is likely to be inferior to that done in the University, or, at least, not as well adapted to the purpose and needs of the student; (3) it is necessary, or at least desirable, under our major subject system, looking toward specialization in some particular line, to start with the freshman year in order that the work may be properly co-ordinated and developed.

The second plan was adopted by the Executive Committee December 8, 1905, and this action was ratified by the Council December 15, 1905. The regulations in detail are included in the President's Report for 1904-05.

The Degree in Law. At the meeting of the Council held May 8, 1905, a recommendation was presented from the Executive Committee proposing that the degree of Bachelor of Law be made a strictly graduate degree. After discussion, and at the request of the Department of Law, this recommendation was referred back for further consideration. February 1, 1906, the matter was again taken up by the Executive Committee and referred for preliminary consideration to the Committee on Graduation. To this latter Committee was submitted a proposition from the Department of Law (1) to retain the degree of Bachelor of Laws for special and regular students completing the required courses in Law, but bringing the requirements, as measured in entrance and university units, to a level with the requirements of the A. B. degree; (2) to establish the degree

of Juris Doctor for candidates completing the required courses in Law after having received the degree of Bachelor of Arts or its equivalent. The Committee on Graduation reported its preference that the law degree be made a strictly graduate degree, but otherwise approving the proposal to raise the requirements for the degree of Bachelor of Laws. This report was submitted to the Council by the Executive Committee February 20, without recommendation, and was again referred back by the Council. March 7, the Executive Committee reported to the Council recommending (1) that the degree of Bachelor of Laws be not granted after May, 1907, and (2) that the degree of Juris Doctor be established as a strictly graduate degree. This report and recommendation was adopted by the Council.

This action of the Council is not intended as a requirement that all students shall take the A. B. degree before entering upon a course in law. It is intended to emphasize the value of such preliminary college training and to encourage the full six-years' course so far as not awarding a degree in law on any other basis may do so. Qualified special and regular students may still pursue the three years course in law and prepare for the bar examinations without taking other college work. The substitution of the degree of Juris Doctor for that of Bachelor of Laws is believed to accord with the judgment of the best American law schools.

End-Semester Examinations. From the first it has been the policy of the University to permit the individual instructor to decide for himself as to the proper method of conducting his own classes, and the manner in which the progress of the student shall be tested. Hence no final or end-semester examinations were arranged by the University, and if such were desired by the instructor he was supposed to use one or more of his regularly assigned recitation or lecture hours. In practice it was found that a majority of the instructors desired to give some form of written test at the end of the semester, and that in many cases the use of the recitation hour did not satisfy the requirements of an adequate test. The tendency of instructors desiring longer tests to encroach upon the time of regular recitations and laboratory work, the crowding together of many short examinations with the consequent confusion and strain, led to a recommendation from the Committee on Schedule and Examinations providing for an end-semester examination period at the close of each semester. As reported by the Executive Committee and adopted by the Council (February 20, 1906) its provisions are as follows:

1. The last six days of the semester (Saturday to be included) shall be free from all recitations, lectures and required laboratory work, and shall be set aside for examination purposes for those instructors who desire to give examinations of whatever sort at the close of the semester.

2. No preliminary or final examination shall be held during the week preceding this examination period.

3. A schedule of examinations for each examination period shall be arranged by the Committee on Schedule and Examinations and be published in advance in connection with the Schedule of Lectures and Recitations, and no end-semester examinations shall be held at any other time except by permission and arrangement of the Committee on Schedule and Examinations.

The schedule prepared for May, 1906, was rendered inoperative by the early closing of the University, and the plan will be put into effect for the first time in December, 1906.

A new Standing Committee. A new standing committee—on Recommendation of Teachers—was created at the January meeting of the Council, the following definition of functions being adopted: "The Committee on Recommendation of Teachers has to do with the recommendation of graduates for the high school certificate, in accordance with the provisions of the State Board of Education, and shall also act as an

advisory committee with reference to the qualifications of graduates and students for school positions."

Higher University Standards. Throughout the year, both in the Committee on Scholarship and the Executive Committee, much attention has been given to the question of raising university standards both as regards the admission of new students and also as to their continuance in the University, particularly in view of the apparent necessity of checking a tendency toward an undue increase in numbers. No agreement was reached by these Committees, and the problem having been declared urgent by the President the whole matter came up before the Council at the meeting held May 2, 1906. A communication from the Advisory Board to the President, read at this meeting, made two recommendations with a view to accomplishing the object desired:

(1) "That the Committee on Admission and Advanced Standing require each applicant to present from his school complete and specific information as to scholarship and character, and that on the basis of such information the Committee accept only such applicants as they deem desirable;

(2) That the Academic Council urge instructors to insist upon higher standards of scholarship before granting credit."

Both recommendations were adopted by the Council as temporary measures, and the whole question made a special order of business for the first semester of 1905-06. Meantime the first measure, as interpreted and carried out by the Committee on Admission and Advanced Standing during the summer of 1906, has been found ineffective for the purpose for which it was designed. This experience has also demonstrated that summary action by the Committee, on confidential information furnished by the principal and contrary to the formal action of the school (or principal), is likely to prove a source of embarrassment to principals and others.

The Major Subject System. One of the subjects left over from 1904-05 was a review of the workings of the major subject system. On October 21, 1904, a sub-committee was named to make such investigation and report to the Executive Committee. On March 29, 1905, a resolution was adopted by the Board of Trustees asking the Faculty to consider the advisability of a radical modification of the elective entrance system and the major subject system and calling for the printing of the complete records of the classes of 1904-05. September 22, 1905, the sub-committee made a report of progress and April 12, 1906, submitted its full report to the Executive Committee. The report of the Sub-Committee examined the major subject system historically as it has developed at Stanford, and also in connection with the general evolution of the elective system. Its workings were studied in the light of existing conditions and in view of criticisms in general and of detailed replies to a questionnaire sent to all members of the Council. In view of the fact that the members of the Council as a whole had not had opportunity to study the statistics of actual results under this system, and that these statistics were to be printed and made available for such study, the sub-committee deemed it inadvisable to make specific recommendations. Its general conclusions, however, were summarized as follows:

(1) The major subject system should be retained.

(2) The effective working of the system depends upon the exercise of care and judgment in giving advice and direction to the student, and every department should assume full responsibility in this respect for its own major students.

(3) It is desirable to define more strictly the authority of the major department, (v. *Register* for 1905-06, p. 75), as follows: "The major department has the authority to prescribe not more than forty units of

major and minor work (exclusive of elementary courses in the major department which might be offered for entrance), and shall also recommend such other subjects as may be considered desirable collateral work."

(4) The signature of the major department to the student's study lists should mean not merely assent but approval—approval being interpreted in the spirit of the major subject system, which is to provide the inexperienced student with necessary advice and direction while developing his power of initiative, and to accord to the mature student larger and larger responsibility in planning his own course.

(5) It is desirable, as a general principle, that at least sixty units of the work required for the Bachelor's degree be taken outside of the major and closely related departments. A fixed rule is deemed unnecessary, but departments should regard this as an expression of university policy to be departed from only in exceptional cases.

(6) The arrangement of a so-called University Course is undesirable.

(7) At the end of the next four-year period, statistics, similar to those gathered this year, should be collected and examined with a view to ascertaining the further working of the major subject system.

The Sub-Committee's Report was presented to the Executive Committee April 30, 1906, and immediately referred to the Council. It was received by the Council May 2, 1906, and ordered laid on the table.

EXECUTIVE COMMITTEE.

Of minor matters which engaged the attention of the Executive Committee and bearing upon University regulations, the following should be noted:

Discontinuance of admission in partial undergraduate standing. From the first it has been the policy of the University to state explicitly the number of entrance conditions permitted, or rather the minimum number of units which would allow of matriculation. With fifteen units required for full undergraduate standing, twelve units have been accepted for admission in partial standing, the partial undergraduate being required to make good his deficiencies in one of two ways prescribed by the University. In 1904 the privilege of admission in partial standing was withdrawn from women, and by action of the Executive Committee, December 8, 1905, will cease to apply to men after January, 1907. This arrangement has been retained thus long because of the lack of adjustment between the detailed entrance requirements of the University and the courses of study of many preparatory schools particularly in the Middle West. As a result recommended graduates of excellent four years' high school courses have been unable to meet the specific requirements in fifteen of our entrance units, not infrequently even in twelve units. This has been due in part to the severity of our standard in particular subjects, but mainly to the inclusion in high school courses of short time subjects not recognized by the University. The greater uniformity in standards, methods, and time requirements brought about by the recommendation of the National Education Associations and by such bodies as the American Historical Association, the Modern Language Association, and others of like authority, has to a considerable extent done away with the need of special concessions. It has been found possible also to introduce greater flexibility into our own provisions for entrance credit without sacrificing the high standards attained. In 1907-08 the enforcement of the new regulation will undoubtedly have a considerable effect upon the numbers of the entering class; after that time it is believed the effect will be slight.

Increased requirements for special standing. By action taken December, 1905, candidates for admission as special students, under twenty-five years of age and not graduates of some approved high school or other

preparatory school, are to be required to pass entrance examinations in subjects aggregating at least five units. The task of discriminating among applicants of this class is a puzzling one and has demanded much attention from the Committee on Admission without compensating results. It is believed that this modest requirement will accomplish a large part of the necessary sifting process without shutting out any really desirable candidates. In the main the Stanford conception of a special student is not one who comes to do specialized (presumably advanced) work, but of a mature person of good mind and of much practical training whose educational opportunities have not put him in the way of meeting our regular requirements, but who is actually as well qualified to take up university studies as the average freshman. So long as this requirement is faithfully met, special students should be as welcome as the average freshman. The fact that many special students desire at entrance, or acquire the desire afterward, to complete a full course and graduate is to the credit of the special student as well as of the University. The minimum age requirement might perhaps with advantage be raised from twenty-one to twenty-three years, but without this the present regulations seem likely to result satisfactorily.

Duplicate record cards. By resolution adopted December 19, 1905, it was provided that duplicate record cards be furnished to the various departments by the Registrar. It is expected that this provision, which goes into effect in 1906-07, will add to the opportunity and effectiveness of the major department in its capacity as student adviser.

Action taken by standing committees. By resolution adopted September 22, 1905, standing administrative committees are directed to report to the President a minute of all Committee action, and academic committees to the Executive Committee, as soon as action is taken. In this way it is expected that the President and Executive Committee will be constantly in touch with all matters in which they are immediately concerned.

Credit for irregular courses. The question of giving university credit for special and irregular courses to university students was covered by a resolution adopted December 19, 1905, providing "that credit courses be not offered except by persons regularly appointed to the teaching staff through nomination of the President and approval of the Advisory Board as required by the Articles of Organization."

Admission on recommendation. The regulations governing admission on recommendation from preparatory schools were modified in the direction of relaxing somewhat the arbitrary distinctions adopted in 1904-05, and with the idea of extending the privilege of recommendation to all preparatory schools (maintaining four years' high school courses) accredited by a college or university of standing. Provision was also made for special cases. The need of having at command an officer of the University who can spend half the academic year in visiting schools, promoting mutual understanding and closer co-operation between the schools and the University, was again emphasized by the Committee on Admission. Such an arrangement, provisionally agreed upon, was unfortunately prevented by Professor Snedden's acceptance of an adjunct professorship at Columbia. The need remains.

Supplementary entrance subjects. In addition to the regular list of entrance subjects it was decided to offer a supplementary list which should include the additional subjects now accepted by the various universities of standing particularly in the Middle West. It is not intended to hold entrance examinations in these subjects, and credit will be given only on recommendation from approved schools where particular university requirements have been fulfilled.

RECOMMENDATION OF TEACHERS.

The most important action of the new Committee on Recommendation of Teachers is the provision that, in addition to the technical requirements of the State Board of Education, the Committee will require, as preliminary to any recommendation for the teacher's certificate, the completion of enough work (and of sufficiently high grade), in at least one subject, to secure a department recommendation that the candidate is fitted to teach the subject in high school classes.

O. L. ELLIOTT,
Registrar.

APPENDIX IV

REPORT OF THE ASSOCIATE LIBRARIAN.

There have been added to the Library during the year 4,829 volumes, making a total at the end of the year of 90,761 volumes. The number of accessions for the two years previous were 4,956 and 4,425 volumes. The following table will show the sources from which these volumes have come:

No. of volumes reported July 31st, 1905.....		85,932
No. of volumes purchased during the year.....	2,535	
General Library.....	2,305	
Law Library	230	
No. of volumes received by gift.....	1,637	
Various Sources	686	
Exchanges	195	
U. S. Government.....	427	
From publishers to Education de- partment	329	
No. of volumes from bindery.....	657	4,829
		90,761

The number of books (2,535) purchased for the general library includes in the main only such as the various departments considered necessary for their immediate work. It represents no single item of extraordinary value.

Gifts worthy of special mention were received from Thomas Welton Stanford, Melbourne, Australia; Timothy Hopkins, who has continued the yearly allowance of funds for sixty serial publications in biological, and railway science subjects; and the State Libraries of Connecticut, Maine, and New Hampshire.

In addition there were received some 6,737 pamphlets, reports, annuals and the like, from numerous institutions and individuals. In this list the most important additions were the publications of the Rockefeller Institute for Medical Research; Philadelphia Museum; and the Bruxelles: Bibliothèque centrale du Ministère de l'Intérieur et de l'Instruction Publique.

Through the courtesy of the English Club of the University, we were enabled to use for exchange purposes 100 copies of the publication, "Elizabethan humours and the Comedy of Ben Jonson." Other publications used in this way were the Doctor's Thesis of J. M. Aldrich, the President's Report, and the Annual Register.

The subscription list for the year includes 640 titles. Of these 210 were sent regularly to the various laboratories for use at those places. The remainder were made available for the most part on open shelves at the general library.

The number of volumes (657) received from the bindery is much smaller than usual, due to the fire in San Francisco on April 18th. 462 volumes were burned at that time, or practically all of the January, February, and March shipments. The conditions resulting were such that little in the way of binding could be done until the close of the year. The amount of insurance to cover this loss was \$700.

Until the date of the earthquake (April 18th) the Library was open every day except Sunday and University holidays. The work of repair made it necessary to close the building entirely at different periods thereafter until the close of the year. Its use was also restricted to those holding permits from the University authorities. While the University was in session the hours were from 8 a. m. to 10 p. m., closing on Saturday at 3:30 p. m.

The number of books handed over the delivery desk in the reading-room was 134,189, as against 157,981 for the previous year. The following table shows the distribution by months:

	Reading-room Use		Taken Out by Students	Taken Out by Faculty for Lab'y	1905-06	1904-05
	Day	Evening			Total	Total
August.....	311	.....	167	427	905	616
September.....	15838	2638	1399	623	20498	16962
October.....	16180	3369	1570	516	21635	21085
November.....	14412	2598	1316	521	18847	21264
December.....	10915	2002	1181	333	14431	15059
January.....	9221	1554	1121	494	12390	13396
February.....	13434	1942	1449	425	17350	19777
March.....	13858	2146	2154	425	18583	21717
April.....	6613	974	1056	190	8833	15214
May.....	.....	.....	81	176	257	12135
June.....	.....	.....	88	127	215	475
July.....	.....	.....	70	175	245	291
Totals.....	100782	17223	11652	4432	134189	157991

These figures do not represent the entire number of books used in the Library, as no record is made of those consulted in the reference-room, in the Hopkins Railway Library, or in other rooms where special collections are kept. In these rooms students have direct access to the shelves.

Permits to the stacks of the main collection have been issued as heretofore to students doing advanced or special work, upon recommendation of professors.

During the year we had occasion to borrow 39 volumes from the following libraries:

Cornell University	1
Harvard University	2
Mechanics' Institute, San Francisco.....	5
San Francisco Public Library.....	6
University of California	22
U. S. Library of Congress.....	3

LIBRARY STAFF

The personnel of the Library force has been distributed in the following way:

General Administration:	M. G. Dodge, Associate Librarian. J. E. Stewart, Stenographer.
Accessions Department:	M. E. Haven, Supervisor. M. Rossiter, Assistant.
Classification:	A. N. Hays, Classifier.
Catalog:	F. Hughes, Head Cataloger. H. B. Sutliff, Cataloger, E. Hadden, Cataloger. A. G. Hall, Assistant. J. F. Barcus, Assistant.
Serials and Binding:	H. Miles, Supervisor. W. Wood, Assistant.
Reference & Bibliography:	L. P. Green, Reference Librarian.
Shelf & Loan Departments:	J. E. Goodwin, Supervisor. B. H. Thompson, Chief Loan Desk Assistant. G. G. Altnow, Assistant. M. I. Crosier, Assistant. G. E. Dole, Assistant. A. L. Kocher, Assistant. S. B. Thompson, Gilder.
U. S. Documents:	L. Patterson, Assistant.

All of the new books received during the year have been classified and catalogued. Considerable progress has also been made in the bringing up of back work, with the result that all of the books in the following subjects were cataloged: Evolution, Botany, and Physiology. More than 500 volumes from the Hildebrand collection were also cataloged, and nearly as many in the Australian Library. 25,664 cards were filed in the catalog, making now a total of 124,014. Of the number for the year, 3,948 were printed cards from the Library of Congress, and 740 from the American Library Association for current periodicals.

We also received from the Library of Congress as a gift 55,000 cards from those first printed by that Library. These together with the proof sheets of current cards have been filed, and give us a complete bibliography of the books in the National Library so far as they have been catalogued.

MELVIN G. DODGE,
Associate Librarian.

APPENDIX V

THE MEMORIAL CHURCH.

During the past year the Memorial Church has fostered four forms of activity in the life of the University:

- (a) Services of Public Worship.
- (b) Instruction in Biblical Literature and History.
- (c) Social Service.
- (d) Pastoral Work among Students.

(a) *Services of Public Worship.* Until April 18th services were maintained in the Church as follows: Daily, organ recital, 4-5 p. m.; Thursdays, 4:30 p. m., vesper service and address; Sundays, morning service and sermon at 11 a. m., musical service and address, 4 p. m. On the first Sunday of each month a celebration of the Lord's Supper in the morning, and an Oratorio Service at 8 p. m. marked the day.

During the first semester the Chaplain preached and made addresses at these services, except upon the Sunday mornings when the following-named clergymen preached by invitation:

1905.

- Sept. 10th, the Right Rev. W. F. Nichols, D. D. (Episcopal).
- Sept. 27th, The Rev. Earl Morse Wilbur (Unitarian).
- Oct. 15th, The Rev. Louis Cornish (Unitarian).
- Oct. 29th, The Rev. R. C. McIntyre (Methodist).
- Nov. 11th, The Rev. Bert Estes Howard (Unitarian).
- Nov. 25th, The Rev. Robert Burdette (Baptist).
- Dec. 10th, Dr. Moulton (Chicago University).
- Dec. 17th, Dr. Samuel Satthianadhan, M. A., L. S. D., on "Christian Missions in India."

1906.

- Jan. 7th, The Rev. W. K. Guthrie (Presbyterian).

By appointment of the Board of Trustees, the Rev. George Hodges, D. D., Dean of the Episcopal Theological School, Cambridge, Mass., came to the Memorial Church as special preacher for a period beginning January 21st and ending on Easter Day, April 15th. During that period Dean Hodges preached on thirteen Sunday mornings, twice on Sunday afternoons and gave a series of addresses on "Prayer" at the Thursday Vesper Services during Lent. The Chaplain cannot too strongly emphasize the value of such a special preachership. Not only does it serve the University, but also the State. Dean Hodges preached fifty sermons, gave fifteen lectures and made thirty-five addresses during his stay in California. He spent himself unselfishly and generously in fulfilling the high office to which he is called.

This report regretfully records that on April 18th the Church was partially ruined by earthquake.

(b) *Instruction in Biblical Literature.* Dean Hodges gave a course of fifteen lectures in the Acts of the Apostles. About thirty-five students enrolled and many visitors listened to the lectures.

The Chaplain gave a course of lectures in "The Life and Teachings of Christ," enrollment 140.

In addition, the Chaplain conducted a normal class for Bible study leaders in the Gospel of St. Mark.

(c) *Social Service.* During the first semester meetings of students were arranged, and addresses made by prominent settlement workers. A class was formed for the study of Social Settlements. The Committee on Public Exercises graciously allowed the matter to be brought before the University in an assembly, when Dean Hodges and the Chaplain spoke on Social Service. At the beginning of the second semester the Chaplain formed the "Stanford Social Service Club." The first meeting was held at the residence of Dr. Branner, Vice-President of the University. Seventy-five students became members, and for the purposes of work divided themselves into sections. These sections, under directors, engaged in the study of (1) social problems and social betterment; (2) social settlements; (3) Political science; (4) educational work; (5) boys' clubs.

The earthquake developed the social service spirit, and Stanford men and women did splendid relief work, both in the neighborhood and in San Francisco.

(d) *Pastoral Work among Students.* The Chaplain keeps office hours daily (except Monday) from 9 to 12 for consultation with students. Each incoming student is greeted by letter and invited to share the life and work of the church. Regular visits are made to the students' hospital, and to students who are sick or in any trouble in addition to the ordinary pastoral work.

D. CHARLES GARDNER,

Chaplain.

APPENDIX VI

LELAND STANFORD JUNIOR MUSEUM.

I have the honor to submit the following report upon the condition and operations of the Leland Stanford Junior Museum during the year ending July 31, 1906.

The interval between the making of the last annual report and April 18th was taken up mainly in the labeling of the cases and larger objects on exhibition, a complete series of hand-painted labels having been made by Mr. C. V. Burger for that purpose during the winter. Considerable work was also done in the Department of Egyptology, mountings being made for many of the choicest specimens of bronzes, alabasters, and scarabs. The absence of Assistant Curator Austin in Alaska, prevented any marked improvement in the mineral collections.

The earthquake of April 18th demolished part of the building, including the rooms devoted to the departments of Egyptology, Mineralogy, Ornithology, Natural History, Conchology, and the Stanford and Stock Farm Historical Collections. The original building, that of reinforced concrete, suffered but little in itself, but the contents lost heavily by breakage. The greater part of the Cesnola collection was thrown from the shelves, the Venetian glassware fell to the bottom of the cases in spite of the fact that they had been fastened to the shelves. The Greek and Roman room was affected very slightly, the American Indian material lost a few unimportant pieces, though many articles were scattered over the floor. The Japanese department had a number of broken pieces, the Ikeda collection, however, singularly escaping with scarcely a damaged porcelain.

The Art Galleries were fortunately exempt from serious damage. With one exception, every piece of statuary, bronze, and terra cotta in the Hewes' room was thrown to the floor and badly broken. These have since been mended and restored by Mr. M. A. Edwards, the sculptor.

The memorial room sustained no loss, with the exception of two plaster busts, while three cases in the Leland Stanford Jr. room underneath were thrown face down on the floor and the contents shattered, as were also many exhibits in other cases in this room.

The Egyptian collections were buried in from one to six feet of fallen brick, concrete, twisted steel, etc. Some four months were consumed in digging out the various pieces of the collection, and so thoroughly and carefully was it done by Mr. Dudley and his assistants that the actual percentage of loss will be very small.

The most important acquisition of the past two years was received from Mr. Thomas Welton Stanford, of Melbourne, Australia. It includes a large personal collection of paintings by eminent artists of Europe and Australia. At the time of the earthquake these were stored in a portion of the building which collapsed, but fortunately very few were damaged. Mr. Stanford also donated a collection of South Sea shells and specimens of Tyrolean picture-carving.

From Mr. Horace Davis was received four life-sized Gesellschaft photos of the figures in Raphael's Sistine Madonna, photographed directly

from the original painting. Mrs. Horace Davis presented a rare life-sized Copley portrait, the subject being a relative of William Morris. She was also the donor of several handsome specimens of oriental porcelain, and a beautifully decorated urn by Theodore Deck.

To the Historical Collection was added a number of personal relics of Senator Stanford and Leland Stanford Jr.

Dr. Branner presented a collection of stone implements, including many pieces from the Cubberley and Arnold collections.

A Columbian half-dollar was given by Mr. George E. Crothers.

Mrs. Charles E. Hodges presented a collection of Guatemalan shells, cloths, costumes, etc., to the South American collection.

A number of specimens of Central African material was received from Miss Charlotte Maybury of San Jose.

Prof. Hoskins gave a medal cast in commemoration of the jubilee celebration of the University of Wisconsin.

Two old English prints were sent by Prof. Fritz Günther of Oxford.

The current issues of the Daily Palo Alto, Chaparral and Alumnus were received and filed.

The specimen group of five deer which Mr. John Rowley, formerly of the American Museum of Natural History, was completing, was almost totally ruined on the morning of the 18th. These will be replaced by him as soon as possible. An admirably executed group of California quail has just been finished and presented to the museum by Mr. Rowley.

H. C. PETERSON,

Curator.

APPENDIX VII

REPORT OF SUB-COMMITTEE ON MAJOR-SUBJECT SYSTEM.

(Adopted for Submission to Executive Committee, April 12, 1906; transmitted by Executive Committee to Academic Council, May 2, 1906).

October 21, 1904, at the suggestion of President Jordan and in view of certain criticisms directed against the major-subject system, the Executive Committee of the Academic Council appointed a sub-committee, consisting of the Registrar, Professor Gilbert, and Professor Farrand, to investigate the workings of this system at Stanford and report to the Executive Committee.

At a meeting of the Board of Trustees of the University held March 29, 1905, the following resolution was adopted:

"Resolved by the Board of Trustees, That the President and Faculty consider the advisability of adopting a system of entrance requirements and courses of study in which a greater portion of the work of the students shall be specifically prescribed; and that, to assist the Trustees and Faculty in the consideration of these matters, there be printed under the direction of the Registrar the records of entrance and university credits of all graduates from June 1st, 1903 to June 1st, 1905, also the entrance requirements and courses of study of other leading colleges and universities, together with such schedules and additional matter as the Trustees, President, or Faculty may consider of substantial assistance to them."

September 22, 1905, a report of progress was made to the Executive Committee by the Sub-committee. At this meeting, in view of the resolution of the Board of Trustees of March 29, 1905, the membership of the sub-committee was increased from three to five. The absence on leave of Professor Farrand necessitated the appointment of an additional new member, and the Committee was reconstructed with the following membership: the Registrar, Professors Gilbert, Adams, Fairclough, and Clark.

The large amount of work devolving upon the Executive Committee in connection with the reports and discussions upon the powers and duties of standing committees, which lasted through the academic year 1904-05, prevented early consideration of the major-subject system. April 15, 1905, a questionnaire was sent to all members of the Academic Council, designed to bring out the opinions and judgment of members of the Council as to various features of the major-subject system in its actual workings, together with suggestions as to modifications or other preferable arrangements. The results were collated early in the academic year 1905-06, and an abstract was mimeographed for the use of the Sub-Committee and for the information of the Executive Committee. The records of the 1904 and 1905 graduating classes, as compiled by the Registrar in response to the resolution of the Board of Trustees, were sent to the executive heads of the various departments, in March, 1906, for comment on points suggested by the Sub-Committee. Several meetings

HISTORICAL RESUMÉ.

of the Sub-Committee in March and April were devoted to a consideration of the material in hand.

The report of the Sub-Committee may properly be prefaced by a brief historical resumé.

The American college had its beginnings in very humble circumstances, and for a long time did not look toward a university foundation. The curriculum was fashioned after the ideas of the time and gradually became fixed in character, its main energies being expended on Greek, Latin, and Mathematics, with scant recognition of certain other subjects not very extended in number. When enough studies had been provided to comfortably fill the student's time for the traditional four years the curriculum seemed to its creators complete and sufficient, and modification and innovation were stoutly resisted. So long as each student, during his four years in the college, took every course offered, there could be no question of elective studies: the faculty merely arranged the order of prescribed subjects. The first course offered that was not required of every student signalized the beginning of the elective system. Since that time there has been no question of the fact of election (or selection); the question has been, who shall make the selection, and how shall it be made? The first elections came about, not by the addition of new subjects, but by the extension of work in the prescribed subjects beyond what could be covered by any one student in the traditional four years.¹

The natural conservatism of the college and the importance attached to the so-called humanities, retarded the introduction of new subjects, and for a considerable time the question of election gave little trouble. The professional schools of Medicine, Law, and Divinity had been loosely attached to the college without in any way modifying or coming in contact with the traditional college course. When the demands of science and engineering became insistent they were recognized in the same manner, the Lawrence Scientific School at Harvard and the Sheffield Scien-

¹The beginnings of election at Harvard, which may be taken as the typical college, were made under the influence of George Ticknor, Professor of Modern Languages from 1820 to 1835. Ticknor's advanced ideas had been gained through observations of the continental universities and through acquaintance with Jefferson and the ideas which Jefferson incorporated in the University of Virginia. However, Faculty opposition was so strong at Harvard that little impression was made outside of Ticknor's own department.

"The laws of the University allow, after the Freshman year, to the parents or guardians of undergraduates a selection in respect to certain specified studies. This selection must be made known to the Faculty on or before the first day of June, in each year. If no notice of such selection be received, in respect of any student, the Faculty themselves proceed to assign to each student the elective studies they deem it best for him to pursue."—*Harvard Register*, 1844-5, p. 38.

"All the studies of the Freshman and Sophomore years are *required* of each student. The same is also true of all the studies of the Junior and Senior years, excepting the ancient and modern languages, and mathematics. These, during the last two years of the college course, are *elective*; that is to say, as no student, during those years, has time to attend to more than two of them, in addition to the required studies, he is allowed to elect the two which he and his parent or guardian prefer."

"Notice of the selected studies must be left in writing at the Regent's office on or before the first day of July. If such notice be omitted, the Faculty will make the selection."—*Harvard Register*, 1853-54, p. 31.

By 1868-69, elective studies at Harvard had been increased as follows:

Sophomore year (choose eight hours): Greek, Latin, pure mathematics, applied mathematics, English and Italian.

Junior year (choose *three* or *two*): Greek, Latin, ancient history (in Greek textbooks); mathematics, applied mathematics, chemistry, natural history; the English language, and German. Spanish and Italian may be taken as extr studies (without marks).

Senior year (choose *three* or *two*): Greek, Latin, mathematics, physics, chemical physics, history, philosophy, modern languages.—*Harvard Register*, 1868-69, p. 33.

tific School at Yale being established at approximately the same time (1846-47).²

But this convenient separation of subjects did not prove satisfactory, particularly to those in the college proper. The later history of the college curriculum is concerned with the enrichment of (or invasion of) the traditional college course by a multitude of subjects of human interest not formerly considered as pertaining to a university education or strictly relegated to the professional and technical schools. *Pari passu* the gradual breaking down of the compartment idea has come through the raising of requirements for entrance and graduation in the technical and professional schools to an equality with those of the college proper. The tendency (not yet completely worked out) has been toward a single line of separation—that between undergraduate and graduate instruction,—and (with less conclusiveness indeed) toward a single degree for every variety of undergraduate course recognized by the university.

The methods devised to meet the problem raised by the introduction of a great number of new subjects may be roughly classified as follows:

- I. The fixed-course system.
- II. The group-elective system.
- III. The free-elective system.

The fixed-course system connects itself with the beginnings of the controversy as to what studies are essential to a liberal education. The Harvard college course, fixed as to its main constituents, gradually made room for an increasing number of electives. But as regards the time-honored subjects, no concession (before 1866-67) was permitted.³ The multifarious fixed-course system as developed under the leadership of Wayland of Brown, Tappan of Michigan, and others,⁴ influenced no doubt by the greater freedom of the University of Virginia, started with the notion that there are diversities of gifts and tastes which may rightly be regarded, that the absolutely fundamental studies are fewer, and the list of culture studies larger, than had been supposed, and that these diversities of gifts and tastes are capable of classification and can be properly and sufficiently well accommodated by a reasonable number of fundamental types of general education. Provision was first made for maintaining inviolate the traditional Arts course, with its prescribed Greek, Latin, Mathematics, and minor ingredients. The demand of certain classes of students for a different diet, for an opportunity to pursue largely other lines of study, as also the demand of these other subjects for a place in the college curriculum, was met by the establishment of various complete courses of study, each leading to a different degree. The Ancient Classical remained as the traditional college course leading to the degree of

²In 1868-69, we have at Harvard, in addition to the regular, mainly-prescribed college course proper, the Lawrence Scientific School, with numerous divisions and courses, and schools of Law, Medicine, Dentistry, and Divinity,—all confined in separate and, so to speak, water-tight compartments. All of these various schools offered courses leading to degrees, but not to the degree of Bachelor of Arts. All had separate funds, different entrance requirements, different requirements for degrees, and were in no way thought of as equivalent to, or on terms of equality with, the traditional college course. The Law School gave no entrance examinations and had no requirements for admission except age. The Lawrence Scientific School specified "a good common school education" as prerequisite to admission. Students in these various schools, as compared with the college proper, were regarded as of a different and lower order; at any rate, as following a different orbit. The humanities and the culture studies were protected by their exclusive right to the Bachelor of Arts degree.

³In 1866-67 Greek, Latin, and mathematics were made optional for the sophomore year; in 1884-85, for the freshman year.

⁴"In 1830 a scientific and literary course was established at Columbia, with a 'view of rendering the benefits of education more generally accessible to the community.' . . . The course did not appear to 'find favor with the public,' and was discontinued in 1843."—Broome, *College Admission Requirements*, p. 43.

Bachelor of Arts. The Literary, Scientific, Philosophical, and others of varying names, retained in different mixtures, and to a greater or less extent, most of the time-honored culture studies, while making larger room for the newer subjects, and were distinguished with the labels Bachelor of Letters, Bachelor of Science, Bachelor of Philosophy, etc. It is not probable that these new courses were regarded, even by their creators, at least at first, as having the same dignity and value as the time-honored classical course. But the same results were aimed at, and the compartment idea was entirely absent. Certain constants appeared in all the courses, or at least such a combination of subjects was attempted as would insure the discipline and culture of a liberal education.

The fixed-course system adapted itself very well to a limited curriculum, and in a modified form is still a convenient arrangement in many small colleges. But as the number of University subjects increased, college faculties were put to greater and greater straits to provide a place for the new subjects. In the final attempt to adapt the system to rapidly changing conditions the newer subjects were chopped into fine bits, a term of each, and so wedged into the various curricula. But as subjects continued to multiply even this plan proved impossible of execution, and the system broke down of its own weight.⁵

The fixed-course system lost its absolutely fixed character when the first elective studies were introduced; and, at Harvard for example, the gradual increase of elective studies finally merged it into the free-elective system. But this transformation, beginning at the top, was slow in reaching down to the first years of the course. Once started, however, there was no stopping until the bottom was reached. The group-elective system was originally a second stage in the development of the multiform fixed-course system. In the group-elective system faculty attention is concerned only with the constants or fundamentals, and with the general regulations and restrictions under which the individual student may add to, or build up from, the prescribed fundamentals. It permits to the student a large amount of liberty of choice, while insisting that general faculty direction must conserve the principles which underlie a liberal education. While permitting as large a number of combinations as possible it attempts to guard against early specialization and to insure breadth of knowledge and culture. It checks and stops the downward movement of the elective system at a point where the fundamentals, or fundamental combinations, are reached. The chief difficulty with the group-elective system, as a problem in administration, has been the increasing diversity of opinion in college faculties as to what are constants, or fundamentals, and as to what are the principles which underlie a liberal education. The value attached to formal discipline has been largely discounted. The exclusive prerogative of any study, or group of studies, has been sharply challenged. Such questions as these have been raised: Are there certain studies, or any studies, which, independent of the particular bent or quality of the individual, may be prescribed as culture studies? Is culture the result of knowledge of certain kinds, or is whatever aerates the mind, enlarges the understanding, and trains the faculties a means of culture? May not a technical subject, or a limited range of subjects, pursued enthusiastically and to exact results, be more opening to the mind, more deepening, than the purest distillation of culture studies pursued listlessly

⁵The number of courses at Harvard, in 1905-06, open to candidates for the degree of Bachelor of Arts, is so great that a single individual taking the average number per year would require over seventy years to cover them all. Imagine the task for the Harvard faculty of planning a sufficient number of fixed courses which should provide a satisfactory place for every study offered! Forty years would suffice to cover all the undergraduate work at Stanford at the present time.

or triflingly? May not technical studies so-called be compared with humanistic studies on even terms? Does the culture-ideal monopolize the field of university study? Is not the service-ideal quite as worthy? Though it be admitted that nothing else will give the same fineness of temper to the human spirit as an intimate and sympathetic knowledge of the best that has been thought and said in the world, is not social efficiency as genuine a test of the true value of a university education? So long as these questions continue to be puzzling to college faculties there is little hope of agreement upon a group arrangement; or, if a compromise agreement is reached, the system is likely to be complicated and unwieldy.⁶

⁶Typical examples of present-day Group-Elective Systems:

I. YALE.—Every student must complete before graduation two majors (=28 units) and three minors (=30 units), and these must be so arranged that not more than two of the five shall be in one of the three following divisions: (1) Language, Literature, and Classical Archaeology, (2) Mathematics and the Natural and Physical Sciences, (3) Philosophy, Education, History, and the Social Sciences.

Every Freshman is required to take five of the eight following three-hour courses, namely: (1) Latin, (2) Greek, (3) French, (4) German, (5) English, (6) Mathematics, (7) Chemistry, (8) History; and three of the five courses chosen must be in continuation of subjects offered for entrance, namely, Latin, Greek, French, German, English, and Mathematics.

Every Sophomore is required to choose thirty hours (units), and may choose thirty-six, from the following departments: (1) Latin, (2) Greek, (3) Biblical Literature, (4) French or Spanish, (5) German, (6) English, (7) Mathematics, (8) Physics, (9) Geology, (10) Biology, Physiology, (11) Philosophy, (12) History, (13) Social Science. Only one course may be chosen from each department or group, except that in Philosophy two courses may be chosen, one in philosophy and one in psychology; and Physiology may not be taken as part of the required thirty units.

The Junior and Senior years are entirely elective except that honors in special studies are conferred "to promote the rational choice of electives and give due recognition to good scholarship."

II. JOHNS HOPKINS.—At Johns Hopkins the degree of Bachelor of Arts (the only baccalaureate degree conferred) "signifies, in the case of every recipient, such instruction in ancient and modern languages, in mathematics, in the physical and natural sciences, in literature, philosophy, and history, as is believed to be essential to a liberal education."

The entire work of the Freshman (sub-matriculation) year is prescribed as follows: Mathematics, Latin, Greek (or French or German, for those not offering Greek on entrance), English, and Freehand and Mechanical Drawing.

After the Freshman year the student is offered a choice among seven groups, as follows: (1) Latin and Greek, (2) Mathematics and Physics, (3) Chemistry and Biology, (4) Geology and Biology, (5) Latin and Mathematics, (6) History, with Political Science or Economics, (7) English, with German or French. Each group is definitely prescribed, with an allowance of one two-hour elective course in the Senior year. Each group consists of eight four-hour year courses (= 64 units), two three-hour courses (= 12 units), one five-hour course (= 10 units), and one elective two-hour course (= 4 units). Rhetoric, English Literature, Philosophy, Economics and History, and at least one year of French and one year of German, are included in every group. Drawing and Vocal and Physical Culture are also prescribed for each group as additional work.

However, the student who does not wish to follow strictly the group he has chosen may, with the approval of his adviser, substitute other studies for two—in certain cases, for three—of the courses laid down in the group. Such students must take the prescribed courses in Rhetoric, English Literature, Economics and History, Philosophy, the minor (elementary) course in French and the minor in German, English Composition, Drawing and Physical and Vocal Culture, and also five four-hour year courses, of which at least one must be a major (advanced) course, and at least one a laboratory course (in addition to the major course if that also be a laboratory course), and an elective two-hour year course.

"Those who wish to concentrate their attention on the more thorough study of a special field, will find it advantageous to accept the groups as they stand."

III. PRINCETON.—Princeton offers three courses leading to the degrees of A. B., Litt. B., and B. S.

The Freshman year in each is rigidly prescribed, English, Latin, and Mathematics being common to all.

In the Sophomore year Physics, Logic and Psychology, and Greek and Latin are prescribed in the A. B. course, and Physics, Logic and Psychology, and Mathematics or Latin in the Litt. B. and B. S. courses. The two Sophomore elective studies must be chosen, by the A. B. candidates, from (1) Latin and Greek,

The free-elective system simply pushes the group-elective to its logical conclusion. But the free-elective system approaches the problem from a new point of view. Every group-elective system, no matter how many groups there may be, is arranged for the abstract student, and according to a preconceived notion (usually a compromise notion) as to what studies or combinations are indispensable to a liberal education. But there are no abstract students—only individuals. And out of this disagreement as to essentials, this hopeless task of compromise and patchwork, there comes finally the notion that any satisfactory arrangement of studies must await the actual appearance of the individual student, and that all prearranged schemes must adapt themselves to, and be modified by, the tastes, capabilities, and needs of the individual. The individual student must work out his own course of study.¹

(2) Chemistry, (3) History and English, (4) French, (5) German; Litt. B. and B. S. candidates are restricted to the same list, except that Graphics may be elected by those who also take Mathematics.

Each Junior must choose one of twelve departments in which to concentrate his studies, and must take all the Junior year courses of that department, as indicated in the list of junior courses, as well as the courses which are there stated to be cognate to that department. The eleven departments are also grouped in four Divisions, and three of the five junior courses must, in all cases be in the Division in which the Department lies, one course outside of this Division, and the remaining course elective.

Each Senior must continue his studies in the Department in which he has satisfied the junior requirements, and must take three courses in that department; or, if there are not so many senior courses in that department, the three courses must, in all cases, be in the division in which his department lies.

In the following list Divisions are indicated by Roman numerals, Departments by figures: I. (1) Philosophy, (2) History, Politics, and Economics; II. (3) Art and Archaeology; III. (4) Classics, (5) English, (6) German, (7) Romanic Languages; IV. (8) Mathematics, (9) Physics, (10) Chemistry, (11) Geology, (12) Biology.

"It was because the group system did not have the necessary elasticity that its abolition was decreed." "The writer of this paper was for a number of years a member of a committee called the Committee on Substitutions, which did something toward adjusting the group to the needs of the individual student. The committee was sorely perplexed between the desire to uphold the law and the wish to give relief in the particular case. Moreover the committee had to do its work in the dark, revising the course for students without a sufficient knowledge of their needs or aims. When it did give relief, it usually had to put it on the ground that the student probably knew what he was about. Such concessions, justified by such a plea, evince a growing conviction that students are likely to form a better plan of work for themselves than anyone else can form for them, to say nothing of the greater interest they are sure to take in work of their own choosing."—Dean Hudson, of the University of Michigan, at Fifth Annual Conference of Association of American Universities.

"In short, I believe that all these diversities, and, if you please, confusions, tend in one direction, namely, to a more perfect observance of that fundamental principle in education, that the endeavor should be made to direct education from the beginning to those things which the boy or youth can do best, and never to the things that he cannot do."

"It is a very natural idea that experienced teachers should be able to make groups of subjects which they can recommend to youths who are looking forward to education, but have no experience in it, and who might be supposed to be less capable of laying out their own path. There is no more natural idea than that, and none that I have listened to oftener during the last thirty years of this discussion. There have always been in our faculty men who held the view in the strongest way that grouping ought to be possible, that groups ought to be made by the faculty and set before the youth, if not by way of prescription, at least by way of advice. That question came up again three years ago, and we gave a good deal of time to the discussion of it. The question was settled by finding that nobody was willing to make the groups. We could not find anybody who was willing to lay down, for example, the group that should be followed by the student who was going to be a literary man. We could not even agree on who should make the group for the men who knew they were going to be physicians. The professors of law declined to make a group for those undergraduates who knew they were going into the Law School. That is the fundamental trouble with the group system. With more and more experience, the conclusion, furthermore, is gradually arrived at that no wise advice can be given to a young man looking forward to his education which does not make the study of that young man the fundamental object, the fundamental guide. That is my conclusion. I am absolutely unwilling to advise a youth to take a

When this point of view is fairly grasped it would seem to mean the turning over of the whole problem to the student himself—to the immediate and immense relief of the college faculty. The university will spend its endeavors in providing as rich and varied a programme as its resources permit. Every subject of legitimate human interest and inquiry will be covered as adequately as possible. No departments or fields of knowledge will be slighted, and all will stand on an equality of dignity, equipment, and emphasis. The student will be invited to come forward and select what he wants, according to his tastes, capabilities, and ambitions, to feed at will and with every help the university can afford.⁸

given course through the elective system, unless I have time and means of studying that youth. That is the reason why I believe that faculty groupings are almost always misfits. Clothing cut out by machinery on patterns never fits a single individual. . . . The difficulty of making prescribed or recommended groups is this, that there are altogether more things which are fitted for a youth who is going to be a lawyer than he can possibly study. It is just so with the youth who is going to be a physician or surgeon. . . . The choice is too rich, and no agreement can be reached as to what particular few courses, such as the individual can take, shall be recommended to him. Experience has absolutely established at Cambridge that the natural limitations and guides are so strong, so clear, that the youth who has a bent or a tendency makes his own group without serious danger or harm. If he makes a mistake under the elective system, it is a mistake perhaps on one course, at the outside on two courses, and he corrects it quickly. If he makes a mistake in selecting a group and cannot change his group, he is in a bad way."—President Eliot, of Harvard University, at Fifth Annual Conference of Association of American Universities.

⁸This was exactly the idea incorporated by Jefferson in the University of Virginia. In a letter to George Ticknor, dated June 16, 1823, Jefferson writes:

"I am not fully informed of the practices at Harvard, but there is one from which we shall certainly vary, although it has been copied, I believe, by nearly every college and academy in the United States. That is, the holding the students all to one prescribed course of reading, and disallowing exclusive application to those branches only which are to qualify them for the particular vocations to which they are destined. We shall, on the contrary, allow them uncontrolled choice in the lectures they shall choose to attend, and require elementary qualification only and sufficient age. Our institution will proceed on the principle of doing all the good it can, without consulting its own pride or ambition; of letting every one come and listen to whatever he thinks may improve the condition of his mind."—Quoted by Herbert B. Adams in Bureau of Education Reports, Circular No. 1, 1888, p. 123.

The University of Virginia began (in 1825) with eight separate "schools": (1) ancient languages, (2) modern languages, (3) mathematics, (4) natural philosophy, (5) natural history, (6) moral and mental philosophy, (7) anatomy and medicine, (8) law. The student could take work in one or more schools, first meeting the entrance requirements of the particular school, and when he had finished the work of any school he was considered a "graduate" of that school. The Virginia system was vastly more liberal and flexible than that of any other American university. There was nothing of the compartment idea about these separate schools, and graduation from a school was a coveted and honored distinction. The system did not finally work out, however, as Jefferson had planned. Graduation from a school did not carry with it a "titled" degree, and in prescribing conditions for the degree of Master of Arts (and later of Bachelor of Arts) the Virginia faculty tended toward an increasing conservatism. When the A. B. degree came finally to be the common goal of the mass of undergraduates the Virginia requirements were hardly less precise than those of Harvard.

One of the recommendations of President Wayland (of Brown University) after visiting the University of Virginia (1845) was, that "the various courses [at Brown should be so arranged that in so far as it is practicable every student might study what he chose, all that he chose, and nothing but what he chose."—Quoted in Bureau of Education Reports, Circular No. 1, 1894, p. 130.

The next attempt to put the free-elective system in full operation was made by President White in connection with the founding of Cornell University.

When Cornell University opened its doors in October, 1868, it followed the Michigan plan of a number of fixed courses intended to be of equal value and dignity, though with different degrees at the end. But along with the announcement of fixed courses there appeared this statement (Cornell Register for 1868-69, pp. 28, 50, 51):

"Several courses, carefully arranged, are presented, and the student, aided by friends and instructors, can make his selection among them; he may also, from among the various branches pursued at the university, form for himself an entirely independent course; or he is permitted, upon proper representations to the Faculty, to devote himself, as a special student, to a single department of study."

WORKINGS OF THE MAJOR-SUBJECT SYSTEM.

In its consideration of the workings of the major-subject system the Sub-Committee first prepared a series of questions designed to bring out an expression of faculty opinion upon the system as a whole, its excellencies and defects, together with suggestions as to desirable modification or change. About two-thirds of the members of the Academic Council replied to these questions, and an abstract of such replies accompanies this report. A summary of results may properly be included here. These replies, it should be remembered, are not based upon exact statistics, but represent the impressions and convictions of those who have had to do with administering the system or who have had occasion to observe its general effect and tendencies. Sometimes these replies indicate only observed possibilities of the system, sometimes close observation of actual workings.

Q. 1. What do you consider the advantages of the present major-subject system?

44 replies emphasize such features as the following:

(1) It insures a backbone in a general education by giving continuity and thoroughness in one line of work. It means, as a rule, the co-ordination of studies in view of a central purpose, and that the student must face scholarly standards in at least one line of work.

(2) It brings the student into immediate contact with an experienced adviser who has the opportunity of strongly influencing the student's choices, and whose advisory relation is to continue throughout the undergraduate course.

(3) It makes the student a partner in planning his own course of study, tending to secure at the very beginning a sense of responsibility and earnest consideration of his university course with reference to a definite purpose in life.

(4) Its elasticity secures the greatest variety of adaptation to suit individual development; it affords opportunity for broadening as well as for specializing. It permits the student to follow a course of study adapted to his preparation, powers, and capabilities, and the particular needs of his future work. It permits a good student to get what he wants when he wants it. It relates the student's work to his vocation (a) by fostering the love of scholarship, (b) by leading directly to professional studies, or (c) by giving effective preparation for practical life.

2 replies: no advantage:

(1) The major subject system has no advantage over a group system.

(2) Has no advantage which would be interfered with by a rather thoroughgoing remodeling of the present system.

1 reply:

The major subject system may be successful if the major professor be wise and conscientious. In many instances because the major professor is not painstaking, or is not unselfish, or is neither, the major subject system is no better than the system of prescribed courses, and may be worse.

Q. 2. Does the major subject system encourage or permit a tendency on the part of the student (outside of major requirements) to follow the line of least resistance?

28 replies of this kind:

Not to any undesirable extent. Not if sensibly administered. If so, it is due to the over-exactions of the major department. Permissible outside of major work.

16 replies: yes, or qualified yes:

Tendency to omit any line of study which does not appear attractive. The schedule perhaps as much to blame as the major system. Study

best form of guidance? A rigid course-scheme? This never actually fits a single individual; and there is no longer possibility of agreement upon any one, or any number of, fixed courses. Many groups, with a considerable amount of election in each? This is better, but its value is in proportion to its flexibility, that is, in proportion to the extent that it recognizes the individual and frankly concedes his right to amend any pre-arranged scheme in conformity to his own particular needs and desires.

THE MAJOR-SUBJECT SYSTEM.

The major-subject system at Stanford attempts to solve the problem of fundamentals, of the necessity of preserving a certain content in education, by assuming that the work of any distinct department, supplemented by such courses in allied departments as may seem to the major department necessary or desirable collateral work, furnishes such a content. As officially formulated it provides that the course of study of every student shall have as its core or backbone a considerable amount of work in one department or in closely related subjects. The student chooses as his major subject the work of some one department, or as may happen, of some division of a department. The major department may prescribe such courses in the department as seem most fitting, with such other subjects in related departments as are deemed necessary or desirable from the point of view of the major department—the whole amount of such prescription not to exceed one-third of the student's course of study. The remaining two-thirds of the work of the student is freely elective under the advice of the major department. Thus, except in defining the limits of major department prescription, the University Faculty, as a single body, abandons the difficult, more or less impossible task of course-making. This task, so far as major departments are concerned, is turned over to the department. But in the choice of major subject, and of all subjects except the major requirements, the student takes the initiative and "freely chooses any subject taught in the University which his previous studies have prepared him to undertake," subject to the important provision that "the department in charge of the major subject of any student is expected to act as adviser to the student in educational matters, and the recommendation of the department is necessary to graduation." This advisory relation implies, therefore, that the student's entire study-list from semester to semester must be approved by the major department.

⁹Statistics as to the working of the elective system at Harvard, covering the fifteen years from 1886 to 1890, were published in the President's Annual Report for 1889-1900. No individual study lists were exhibited, but generalized results were presented under different categories, such as: What percentage of each class choose little or nothing but elementary work throughout their college course; what percentage drop the classics immediately on entering college, or at the beginning of the sophomore year; what percentage drop mathematics immediately on entering college; what percentage begin to specialize not later than the sophomore year (that is, take at least half of their work in one department); what percentage begin to specialize in the junior year, but specialize moderately; what percentage do considerable amounts of rationally connected work without specializing in any strict sense of the word.

It will be sufficient here to quote the general conclusion of President Eliot: "These tables, as the Dean points out, do not furnish material for an exhaustive study of the elective system in Harvard college; but they support the belief that, as a body, the students use the system with reasonable intelligence. They confirm the results of previous inquiries in several important respects:—thus, they prove that under a wide elective system there will be no extreme specialization, and there will be a fair amount of judicious choice of correlated subjects. The general conclusion is that a boy of eighteen who has had a good training up to that age will ordinarily use the elective system wisely, and that the boy who has had an imperfect or poor training up to eighteen years is more likely to accomplish something worth while under an elective system than under any other."

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(3) It makes the student a partner in planning his own course of study, tending to secure at the very beginning a sense of responsibility and earnest consideration of his university course with reference to a definite purpose in life.

(4) Its elasticity secures the greatest variety of adaptation to suit individual development; it affords opportunity for broadening as well as for specializing. It permits the student to follow a course of study adapted to his preparation, powers, and capabilities, and the particular needs of his future work. It permits a good student to get what he wants when he wants it. It relates the student's work to his vocation (a) by fostering the love of scholarship, (b) by leading directly to professional studies, or (c) by giving effective preparation for practical life.

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Not to any undesirable extent. Not if sensibly administered. If so, it is due to the over-exactions of the major department. Permissible outside of major work.

16 replies: yes, or qualified yes:

Tendency to omit any line of study which does not appear attractive. The schedule perhaps as much to blame as the major system. Study

cards constantly made up with reference to ease of subjects selected or the convenience of the schedule. Undoubtedly, on the part of poor students.

Q. 3. Does this system encourage or permit undue specialization?

25 replies: no, or qualified no:

Not if sensibly administered. The word "undue" has no meaning as a general term: if approved by the major department it is not "undue". Undue specialization no greater evil than insufficient specialization. No general tendency toward undue specialization.

20 replies: yes, or qualified yes:

Yes, but nearly always where the major professor has exercised undue influence. Courses for general culture very few; the student is obliged to specialize because each department is likely to consult the needs of its own majors and disregard the rest of the university. Virtually compels specialization where major professor does not guard against it.

Q. 4. Does this system encourage or permit disregard of a proper co-ordination of subjects?

25 replies: no, or qualified no:

It is the only system that allows a proper co-ordination of subjects. It permits, but does not encourage. Exactly the contrary if properly administered. Not unless the adviser is very remiss.

19 replies: yes, or qualified yes:

Permits, and does not prevent. Yes, if the student is left too much to himself. Yes, but can be overcome by proper advice on the part of major department. Due not to system, but to lack of properly qualified teaching force.

Q. 5. Is there a tendency under this system to consider the problem of the student's course of study from semester to semester only, without regard to his course as a whole?

13 replies: no:

No such tendency observed.

9 replies: yes:

Many students are disposed to consider the course with a view to the immediate future only. Yes, owing to immaturity of student and the fact that many advisers do not take seriously enough their relation to major students.

18 replies: yes and no:

Yes, but quite limited. Need not, but the system no better than the major professor happens to be. Yes, on the part of poor students and negligent professors. Confined to the worthless class of students. Would be remedied by larger teaching force and furnishing departments with duplicate record cards. Would be obviated by a definition of responsibility as to other than major work; this now rests with the student alone.

Q. 6, 7, 8, 9. Would it be advisable to substitute a group system for at least the first two years' work?

Would it be advisable for each department (or for the university faculty) to arrange a series of groups covering nearly all the work outside of the major department?

Would it be desirable to have the major department lay out definitely for each student the first two years' work, leaving the last two freely elective?

Would it be advisable to make the major department responsible for the entire four years' course of each major student?

19 replies: no change desired:

Compulsory studies have a bad effect upon the student. There is a loss of power through restraint and friction. Each student is an individual case. There is no virtue in a group arrangement for the average student,

and it limits the exceptional man. Underlying almost all groupings are certain pedagogical assumptions which cannot yet be proved.

14 replies favor groups:

Generally for the first two years. Majority favor groups arranged by the Faculty. Groups ought to be arranged in accordance with certain general principles to be laid down by the Faculty as the policy of the university.

14 replies: increase department responsibility:

No fixed groups, but suggested and tentative groups may be arranged by departments. Greater responsibility may well be assumed by major departments.

GENERAL SUGGESTIONS.

22 replies suggest changes or minor improvements:

(1) The major subject system does fairly well for the mature student; very little for the student who wants a general education. The chief difficulty is the distortion of courses away from general culture at a period too early to make specialization mean much; courses are planned mainly for the major students. The first years ought to be relatively free from specialization and devoted to general studies.

(2) It should be possible for a student who desires it to devote his entire four years to acquiring a broad general education. There should be a university department or course from which a student might graduate without specialization.

(3) Each department might arrange a four years' optional course for general students, giving general advice and making special arrangements for students with irregular needs.

(4) It might be desirable to make certain general requirements in language, in science, in history, etc.

(5) No student should be permitted to receive more than forty units of credit in one subject (department).

(6) There is a lack of time for advising students; too much advice is concentrated into registration days.

(7) The success or failure of the major subject system depends almost wholly upon the major department. The major department can practically determine the general course of the student and ought to be held responsible for the working of the system and for the prevention of abuses.

9 replies approve system as it is:

(1) Under a system which gives the utmost freedom possible a few will suffer but the many will gain.

(2) Each department should favor breadth or narrowness (so-called) according to circumstances: the student knows what he can afford better than can any group of instructors.

(3) Any schedule of compulsory studies drawn up by the faculty will lead to unending contentions and disagreements, and the freedom from these at Stanford is one of the real productive conditions existing here.

DEVELOPMENT OF MAJOR-SUBJECT SYSTEM.

During the fifteen years in which the major-subject system has been in operation at Stanford it has undergone certain transformations which have an important bearing upon the consideration of proposed changes.

The preliminary scheme, as devised by President Jordan and printed in Circular No. 3, issued in May, 1891, five months before the opening of the University, was as follows:

"As the work of instruction progresses, courses of study in each department will be planned. There will be no general curriculum of any sort. The unit of organization in the University will be the professorship. Each professor will arrange the studies in his own department in

such order as may seem to him best. The courses thus arranged will constitute the major subjects of students in the department in question, and any part of these courses may be taken as minor subjects or as electives by students in other departments.

"The Baccalaureate Degree will be granted to students who have successfully completed the equivalent of fifteen lectures or recitations weekly for four years. In the general courses (those in which the major subject is in language, literature, philosophy, pure science, etc.) the degree of Bachelor of Arts (A. B.) will be granted. In the courses in applied science (Engineering, etc.) the degree granted will be Bachelor of Science (B. S.).

"It is further provided, (1) that these four years of work, as above indicated, shall include as a *major subject* the entire course given by some one of the professors in the University; and (2), as *minor subjects*, such work in other departments as the professor in charge of the major subject may require as collateral work. In the general courses these major and minor subjects, taken together, will not exceed the equivalent of five recitations weekly for the four years of undergraduate work. In the courses in applied science, the work thus required as major and minor subjects may be the equivalent of ten hours per week for the four years. This is exclusive of the time spent in the laboratory or in shop work.

"It is further provided (3), that each candidate for any degree must take, either as preparatory or as undergraduate work, subjects 9 and 20 (Mathematics and English Literature), and also either 18 or 19 (French or German), as enumerated in the entrance requirements above, with such work in Rhetoric and Composition as may be required.

"With these exceptions, all the undergraduate work in all courses will be elective. The student may freely choose for such elective work any subject taught in the University for which his previous studies prepare him."

November 11, 1891, a Committee of the Faculty reported a revised statement of requirements for graduation. The proposed statement omitted the degree of Bachelor of Science and added a final clause defining the advisory relation of the major professor. December 3rd, the report was adopted with an amendment striking out the prescribed mathematics and language (with the exception of English Composition) for the Bachelor's degree. This statement of requirements as printed in Circular No. 6, issued in December, 1891, is as follows:

"The degree of Bachelor of Arts (A. B.) will be granted to students who have satisfactorily completed the equivalent of four years' work of fifteen hours of lecture or of recitation weekly.

"It is further provided that each student shall select as his major subject or specialty the work of some one professor. This professor shall have the authority to require such student to complete this *major subject*, and also as *minor subjects* such work in other departments as the professor may regard as necessary or desirable collateral work. Such major and minor subjects taken together will not exceed the equivalent of five recitations per week, or one-third of the student's time for the four years of undergraduate work. It is also provided that each candidate for any degree must take, before graduation, Course 1 in English (Art of Writing).

"With these exceptions all the undergraduate work in all the courses will be elective. The student may freely choose for such elective work any subject taught in the University which his previous studies here prepared him to undertake.

"The professor in charge of the major subject of any student is expected to act as adviser to the student in educational matters, and the recommendation of such professor is necessary to graduation."

The requirement of Course 1 in English as pre-requisite to graduation is omitted from the *Register* for 1902-03.

In Circular No. 3 (May, 1891) it was stated that "the unit of organization will be the professorship." This statement does not appear again until 1895-96, when the *Register* for that year re-introduces it in this form: "The professorship is the unit of organization, and each professor is independent in his own field." This revised statement was continued for five years, appearing for the last time in the *Register* for 1899-1900. The statement has never been exactly possible of realization and finally became a source of some friction. The matter of departmental relations was referred by the President to the Faculty Committee on Ways and Means, and the Committee Report of February 26, 1901, became the basis of a department organization presided over by a Senior Professor designated by the President.

In the *Register* for 1900-01, in the statement "each student selects as his major subject or specialty the work of some one professor," the word "department" was substituted for "professor." In the *Register* for 1904-05, in conformity to the newly adopted "Articles of Organization," the term "major professor" was everywhere replaced by "major department."

In the *Register* for 1901-02, in the statement "such major and minor requirements taken together will not exceed forty hours (units) of University work" was inserted the phrase, "except in the departments of applied science."

The major-subject system as originally stated was generally interpreted as giving the major professor control of one-third of the student's course of study, and no more, the freedom of the student's choice as to the other two-thirds being subject to such limitation only as schedule conflicts and the necessary sequence of courses would impose. That faculty experience and advice, however, would be an important element in determining the student's choice was at once recognized, and the possibility of some development of the system was provided in the requirement that the recommendation of the major professor should be necessary to graduation. It is in fact along this line that the most interesting changes have taken place. At the outset no machinery was devised for bringing the student and the major professor into advisory and co-operative relations. The mere statement that the recommendation of the major professor would be necessary to graduation, was supposed to be sufficient notice to the student to make himself acquainted with major and minor requirements. This plan worked fairly well in some departments, but was not wholly satisfactory. It was not until September, 1894, however, the beginning of the fourth year of the University, that the major professor's signature to the study card was arranged for, and up to this time no provision had been made for a review of the student's whole course of study, semester by semester, by the major professor.

When the major-professor approval of the study card was asked for the following explanatory statement was appended: "The approval of the major professor is advisory only except as to major and minor requirements." This explanation was continued until 1903-04, appearing for the last time on the study cards of 1902-03. Its omission marks the fact that by this time a considerable transformation of the major-subject system had actually been accomplished. Some departments still held to the old theory that the major professor (or department) had little to do with the work outside the major requirements. In other departments this necessary review of the student's study lists had led to a more comprehensive view of the duties (at least of the opportunities) of the major department, and attempts were being made to control by suggestion and careful advice, sometimes by positive requirement (which, though not

directly authorized, was apparently inferred from the general nature of the advisory relation), the whole or a large part of the entire four years' course. That this transformation of the major-subject system has not been officially recognized by the University, that there is no clear understanding as to its limits, that most departments have not had at hand in accessible form, exact information as to the previous work of major students, and that tact, sympathy, firmness, and specialized knowledge are essential to success in the advisory relation, will account for some confusion and uncertainty of result. It is interesting to note that most of the criticism of the major-subject system is devoted to just this point, and that the correction of faults in the system is generally held to lie in a more careful and painstaking administration of this advisory responsibility.

An important element in the development of the major-subject system is the substitution of the major department for the major professor. This far-reaching change, by which the major professor ceases to be, and the executive head becomes the department chairman, with only such authority in department matters as may be formally intrusted to him by the department faculty, is naturally slow and perhaps difficult of realization. It is offset also by the tendency toward such a subdivision of departments as shall make the department faculty practically non-existent. But in all the larger departments it provides for the serious consideration of the problem of the course of study by a number of men working in similar lines but representing different points of view. The possible compromise result will at any rate, while insuring careful advice, tend to check arbitrary action and to favor the student's general liberty of choice.

APPLICATION TO ENGINEERING AND APPLIED SCIENCE.

In reviewing this inquiry it may first be noted that the major-subject system is only nominally applicable to the departments of engineering and applied science. It is possible for the department of Civil Engineering, for example, to conform strictly to the letter of the law. Forty or less units within the department itself will fulfill all the major departments for the Engineering degree. But these department studies are led up to by a necessarily rigid sequence of mainly technical subjects, which, if the student is to complete the engineering work in the traditional four years, amounts in effect to a prescribed course. It is understood of course that the engineering student is at liberty to take as many additional years as he pleases, and that all the courses and departments in the University are open to him on exactly the same terms as to any other student. The only question is whether the University will require him to lengthen his course by including a greater or less amount of general college studies; or, rather, since his ability to proceed at once to the engineering course is not questioned, whether the University shall refuse a degree unless he has included in his course such general studies, or, at any rate, confer a different degree which shall sufficiently differentiate the engineering graduate from the Bachelor of Arts. In the case of Law and Medicine the importance of a thorough preliminary college training is considered so great that the best schools of Law and Medicine feel that they can afford to make a college education (or three years of a regular college course) prerequisite to admission. This is not because the student without such college training is unable to carry the actual studies of the law or medical course, but because the college training adds so considerably to his power and ability to render service in his chosen profession. Is this equally true in engineering? If so, a requirement of this sort ought to be based on similar reasoning and not on the ground of the technical or educational difference between an engineering course and a liberal arts course.

How much that is descriptive is, or may be, retained in the Bachelor of Arts degree, and how far the University ought to encourage a longer and broader course for engineering students by withholding the A. B. or any degree for strictly engineering studies are pertinent questions, but consideration of them may be omitted here as aside from the general problem of the major-subject system.

GENERAL CONCLUSIONS.

A consideration of the facts and suggestions brought forth by this inquiry seems to your Committee to make it clear that the development which the major-subject system has already undergone indicates the manner in which difficulties and imperfections still existing may find solution. Certain conclusions to which this inquiry points may be grouped as follows:

1. *Consideration of the Individual.*—The consideration due to the individual student forbids the prescription of any ready-to-hand schemes of study. In the case of many students, however, it is not easy at first to discover tastes and capabilities even at the expense of a good deal of time and care on the part of the major department. The student is simply undeveloped along this line. Again, absolute freedom of election does not open to the freshman a boundless universe of subjects. The limitations of the time schedule, and the necessary sequence of studies reduce the number of possible combinations to a manageable quantity. While any actual study-list should await the arrival of the individual, it is not necessary that a department postpone to so late a date consideration of the general problem. On the contrary every department may profitably canvass the whole schedule and tentatively select those courses which the freshman may properly take. There can be no objection to departments making their pre-selection and grouping as definite as can be agreed upon, for any length of time beyond the freshman year. All these schemes, however, should be fluid, not absolute.

2. *The Advisory Relation.*—Of all forms of guarding the elective system against ill-considered and distorted choices the advisory relation promises most. It has the needed flexibility of adapting itself to each individual case, and yet, if wisely administered, will yield just that guidance which clarifies the student's vision and purpose and at the same time strengthens his own initiative. Moreover, the natural adviser of the student is in the major department where every element of artificiality in this relation is reduced to its lowest terms. The growth of the advisory relation at Stanford has been on the whole thoroughly wholesome, and actual experience and possible extension should be recognized and approved by the University. The University should furnish departments with duplicate record cards. The departments should aim to advise more, and more carefully. They should control, and be responsible for, the student's entire course of study to the extent of giving to it and to the student's own problems the most careful consideration, and to the extent of withholding approval of what they shall finally deem an unwise course or combination of studies. But department advice should not prevail against the deliberate judgment of the student honestly held to in spite of all reasoning to the contrary. In such a case it is better that the student seek some other major subject, and, unless his position is wholly unreasonable, a satisfactory adjustment can surely be found. And since department action (outside of major requirements) may not take the form of prescription, dictation, or arbitrary action, the appearance of all such should be studiously avoided.

3. *The Desirability of a University Course or Group.*—The Founding Grant of the University makes it incumbent upon the Trustees "to establish and maintain an educational system, which will, if followed, fit the graduate for some useful pursuit, and to this end, to cause the pupils,

as early as may be, to declare the particular calling which, in life, they may desire to pursue." This provision is not to be interpreted narrowly, and it will be fulfilled whenever a college course is entered upon with seriousness and pursued with conscientious and high aim. It is a characteristic feature of the major-subject system, however, that it brings the student at the very beginning of his college career to a serious consideration for himself of the value of a university training with reference to a definite purpose in life. If it be admitted that a considerable amount of work in some one subject or division of studies is desirable to this end, it will hardly be questioned that the department rather than the university faculty is best qualified to arrange the combination and sequence of studies. The work of every department naturally goes forward in a progressive order, and students must of necessity follow this order. Where, as in most departments, more work is offered than the student can possibly cover within the prescribed limits, natural lines of division have simplified the problem of selection. In the matter of collateral studies in related departments, where the progress of the major work has not clearly indicated such collateral studies, so wide a liberty of choice is usually found admissible that the term prescription ceases to apply.

But objection has been made to this principle. It has been urged that in so far as attention is centered on one subject, which may not be a broad one, the student is prevented from that large and wide sampling of many subjects which is the appropriate diet of many students who do not want to become specialists, who are not looking (during the undergraduate period at least) toward any technical preparation for a particular calling, but who wish to receive a broad, general college education. For this class of persons, it is held, there should be a general university group, or groups, which should insure such broad, general education and obviate all necessity of specialization in any particular subject.

In considering this contention it is to be noted that students have entire freedom of choice as to major subject; and that the change from one major to another is not difficult. If some subjects are narrower than others the narrow subjects may be avoided. Again, specialization as applied to college work, is a strictly relative term. Thirty or forty units in any subject ought to give something of coherence to the student's grasp of the subject, something which, in a purely relative way, may be ambitiously spoken of as a mastery of the subject. In some subjects thirty or forty units imply such a grasp and mastery as will enable the student to turn his knowledge to immediate practical use in the world outside. But, as applied generally to undergraduate studies, specialization is a much overworked term. The major-subject system presumably takes the student far enough into a subject to give him a certain sense of power and a confidence in his ability to go on toward complete mastery. But in no department does it insure any great amount of specialization or interfere with the broadest and most liberal course of study.

The objection is chiefly, perhaps, not to the amount of work in any subject, but to the early introduction of specialized courses before the student has laid the broad, necessary foundation. Instructors prefer advanced students to elementary students, and when the former are not numerous there is a tendency to push the unripe student into specialized courses and to slight the elementary work. It can only be said that this evil, if it exists, is not peculiar to the major-subject system, and must find its cure in some other manner than by the adoption of a university course or group system.¹⁰

¹⁰Statistics of the Harvard graduating classes from 1886 to 1900 inclusive, show that the percentage of those who chose little or nothing but elementary work throughout their course varied from 55 per cent. (class of 1899) to 14.59 (class of 1889) the average being 29.8 per cent. (President's Report, Harvard, 1899-1900, p. 117). This aspect of the Harvard elective system is unfavorably noted in an editorial in the *Nation*, July 16, 1903 (Vol. 77, p. 47).

4. *The Question of Specialization.*—An examination of the records of the graduating classes shows that numerous students do not restrict their work in the major subject to the prescribed units, but freely elect additional work, and sometimes confine their choices to a very narrow field. It is probable that in some cases at least more work has been taken in one subject than was to the student's advantage, and this, in part, with the consent of the major department, and, in part, through a lack of watchfulness and judicious advice. Nevertheless, it is evident that no general rule can apply, and it is interesting to note that in most of these apparently abnormal cases (in the classes of 1904 and 1905) the narrow specialized course is now, upon review, justified by the executive head of the major department. Students of all stages of maturity and experience enter the University, and not a few whose age, previous training, practical experience, and definite purpose fully justify Jefferson's principle "of letting every one come and listen to whatever he thinks may improve the condition of his mind," or Wayland's permission to the student to study "what he chose, all that he chose, and nothing but what he chose." Others have but the one talent, and for them it is a waste of effort to attempt the sampling process. The department should make its diagnosis as conclusive as possible. It can then attempt, on the one hand, to understand and further the student's capabilities and purposes, and, on the other, to correct any tendency toward undesirable one-sidedness or dissipation of energy, and to point out the relation of and co-ordination of studies with reference to training in character and efficiency in their large meanings. Beyond this a positive regulation does not seem necessary.

5. *The Question of Snap Courses.*—"Snap" courses are of two kinds: First, where the amount of credit assigned is in excess of the work demanded; second, where the tests are inadequate so that the conscientious and the lazy are equally sure of their credit. Both kinds of courses may be excellent in themselves and altogether desirable except as dispensers of unearned credits. Their only relation to the major-subject system is that the unwary department is easily imposed upon, and the kind of student who effects this sort of thing escapes for the time being all serious work whatsoever. This kind of student naturally is not found to any great extent in the graduating classes, and it is a question how much pains are worth while in order to checkmate this particular one of his numerous moves. However, in the interest of high standards, departments should be reasonably alert to see that every student's programme of studies involves a proper amount of serious work. It is admitted that in the present poverty of courses, the student entering at the beginning of the second semester must take whatever is open to him.

SUMMARY

Pending the printing of the statistical records and other matters called for by the resolution of the Board of Trustees, and the consideration of the bearing of these upon the problem as a whole by the members of the Academic Council, the Sub-Committee deems it inadvisable to make specific recommendations. The judgment of the Sub-Committee, however, may be briefly stated as follows:

- (1) The major-subject system should be retained.
- (2) The effective working of the system depends upon the exercise of care and judgment in giving advice and direction to the student, and every department should assume full responsibility in this respect for its own major students.
- (3) It is desirable to define more strictly the authority of the major department (v. *Register* for 1905-06, p. 75), as follows:

"The major department has the authority to prescribe not more than forty units of major and minor work (exclusive of such elementary

courses in the major department as may be offered for entrance), and shall also recommend such other subjects as may be considered desirable collateral work."

(4) The signature of the major department to the student's study-lists should mean not merely assent, but approval—approval being interpreted in the spirit of the major-subject system, which is to provide the inexperienced student with necessary advice and direction while developing his power of initiative, and to accord to the mature student larger and larger responsibility in planning his own course.

(5) It is desirable, as a general principle, that at least sixty units of the work required for the Bachelor's degree be taken outside of the major and closely related departments. A fixed rule is deemed unnecessary, but departments should regard this as an expression of university policy to be departed from only in exceptional cases.

(6) The arrangement of a so-called University Course or Group is undesirable.

(7) At the end of the next four-year period, statistics, similar to those gathered this year, should be collected and examined with a view to ascertaining the further working of the major subject system.

Respectfully submitted,

O. L. ELLIOTT,
C. H. GILBERT,
E. D. ADAMS,
H. R. FAIRCLOUGH,
A. B. CLARK,

Sub-Committee.

LELAND STANFORD JUNIOR UNIVERSITY PUBLICATIONS

1907

TRUSTEES' SERIES

NO. 15

DEPARTMENT OF
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LELAND STANFORD
JUNIOR UNIVERSITY.

FOURTH ANNUAL
REPORT OF THE PRESIDENT
OF THE
UNIVERSITY

FOR THE YEAR ENDING JULY 31, 1907

STANFORD UNIVERSITY, CALIFORNIA

PUBLISHED BY THE UNIVERSITY

1907

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3. Address of Jane Lathrop Stanford to the Board of Trustees.....	June 1, 1897
4. Address of Jane Lathrop Stanford to the Board of Trustees	May 31, 1899
5. Address of Jane Lathrop Stanford to the Board of Trustees.....	October 3, 1902
6. Address on "The Right of Free Speech," by Jane Lathrop Stanford to the Board of Trustees	April 25, 1903
7. Petition filed in proceeding to establish and construe University Trusts.....	June 16, 1903
8. Decree in proceeding to establish and construe University Trusts	July 3, 1903
9. Inaugural address of Jane Lathrop Stanford as President of the Board of Trustees.....	July 6, 1903
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11. Report of the Organization Committee of the Trustees upon the Organization of the University Faculty	March 31, 1904
12. First Annual Report of the President	December 31, 1905
13. Second Annual Report of the President	April 30, 1906
14. Third Annual Report of the President.....	December 31, 1906
15. Fourth Annual Report of the President.....	December 31, 1907

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TABLE OF CONTENTS

PRESIDENT'S REPORT

	PAGE
Work of Reconstruction	5
Attendance	5
Classification of Students	6
Faculty Changes	8
Publications	13
The Junior College	18
Instruction in Medicine	23

APPENDICES

I. Department Reports:

Greek	25
Latin	26
German	27
English Literature and Rhetoric	28
Romanic Languages	30
Psychology and Philosophy	31
Education	32
Economics and Social Science	34
History	36
Law	37
Drawing	38
Mathematics	39
Applied Mathematics	40
Physics	41
Chemistry	43
General Botany	46
Systematic Botany	48
Physiology and Histology	49
Hygiene	51
Zoology	52
Entomology and Bionomics	54
Geology	55
Civil Engineering	57
Mechanical Engineering	58
Electrical Engineering	60

II. Committee Reports:	PAGE
Student Affairs	61
Public Health	64
III. Report of Registrar:	
Statistics	66
Faculty Legislation	73
IV. Report of Committee on Admission and Advanced Standing:	
The Original Plan	78
Non-prescription of Subjects	79
Relation to Existing Preparatory Courses	79
Reasons for Rejecting Subjects	80
Devices for Maintaining Equivalence of Values	81
Result of Policy of Supplementary Tests	82
Provisional Admission	83
Admission on Fulfilling Other Requirements	84
Working of Supplementary Test System	85
Admission on Certificate	87
Admission on Examination	89
College Entrance Examination Board	91
Discontinuance of University Entrance Examinations	92
Exception in Regard to English	92
Conclusion	92
V. Report of Librarian	94
VI. The Memorial Church	97
VII. The Museum	99

REPORT OF THE PRESIDENT

*To the Honorable Board of Trustees,
Leland Stanford Junior University.*

GENTLEMEN:

I have the honor to present the following report as President of the Leland Stanford Junior University for the academic year ending July 31, 1907.

From the standpoint of University work, this year has been the most satisfactory in the history of the institution. The best possible feeling has prevailed among students and faculty, and each one has tried to do his best to show that the injuries of the earthquake have not impaired the spirit of the institution.

No single event of overshadowing importance has taken place in the year. The reconstruction of the injured buildings has gone rapidly and successfully forward, with only the interruption of a sympathetic strike of stone masons from May 1 to August 10. This strike, called by labor officials in San Francisco, was very unwelcome to the workmen concerned, and its purpose does not seem to be clearly understood.

The total attendance for the year was 1668. The attendance for the year 1905-06 was 1786. The decrease for the past year, chiefly from among the students from outside of California, was due to the earthquake of 1906. It has been more than made good by the increased registration for the first semester of the current year.

The following analysis of the list of students may be found of interest:

GENERAL CLASSIFICATION

Graduate students:

Candidates for Degree of A. M.....	12
Candidates for Degree of Engineer.....	1
Candidates for Degree of J. D.....	4
Candidates for Degree of Ph. D.....	3
Not candidates for advanced degrees.....	66.. 86

Undergraduates1485

Special students..... 97

Total.....1668

CLASSIFICATION BY DEPARTMENTS

MAJOR SUBJECT	GRAD- UATE	UNDER- GRAD- UATE	SPECIAL	TOTAL	STU- DENTS TAKING WORK	SUM OF CLASS LISTS
					FIRST SEMES- TER	FIRST SEMES- TER
Greek .....	..	14	1	15	205	243
Latin	5	53	..	58	156	221
Germanic Languages.....	3	92	..	95	457	640
Romanic Languages.....	3	19	1	23	416	510
English	8	165	5	178	716	1059
Biblical History. ....	..	..	..	..	12	12
Psychology	2	4	..	6	117	121
Education	7	16	2	25	188	246
History	7	115	6	128	463	695
Economics.....	2	91	4	97	314	371
Law.....	17	259	23	299	265	712
Drawing	5	26	1	32	171	218
Mathematics	2	21	2	25	119	136
Applied Mathematics.....	..	..	..	..	291	503
Physics	1	8	1	10	168	176
Chemistry	5	74	5	84	346	515
Botany.....	2	24	2	28	127	134
Physiology	4	56	4	64	113	140
Hygiene .....	..	..	..	..	324	329
Zoology	2	24	3	29	93	124
Entomology and Bionomics.	3	7	2	12	185	192
Geology	6	112	8	126	298	362
Engineering.....	..	..	..	..	308	431
Civil Engineering.....	..	133	13	146	78	82
Mechanical Engineering...	1	68	4	73	307	409
Electrical Engineering ....	..	103	12	115	67	91

CLASSIFICATION BY STATES

California	1329	Illinois	19
Oregon	51	New York	17
Washington	37	Utah	16

Report of the President

7

Arizona	14	Connecticut	2
Colorado	14	Massachusetts	2
Hawaii	13	Michigan	2
Indiana	13	New Jersey	2
Montana	13	North Dakota	2
Iowa	10	Rhode Island	2
Nevada	9	South Dakota	2
Missouri	8	Texas	2
Idaho	6	New Hampshire	1
Nebraska	6	North Carolina	1
Ohio	6	Virginia	1
Pennsylvania	6	Wyoming	1
Kansas	5	Japan	13
Minnesota	5	Mexico	4
Arkansas	4	Canada	3
District of Columbia	4	India	2
New Mexico	4	Bermuda Islands	1
Kentucky	3	China	1
Maryland	3	Germany	1
Vermont	3	Holland	1
Wisconsin	3	Portugal	1

CLASSIFICATION BY COUNTIES OF CALIFORNIA

Alameda	55	Sacramento	24
Amador	3	San Benito	3
Butte	6	San Bernardino	64
Colusa	2	San Diego	46
Contra Costa	4	San Francisco	108
Fresno	22	San Joaquin	15
Humboldt	17	San Luis Obispo	14
Inyo	2	San Mateo	33
Kern	8	Santa Barbara	23
Kings	3	Santa Clara	459
Lake	1	Santa Cruz	15
Los Angeles	228	Shasta	4
Madera	2	Solano	9
Marin	6	Sonoma	15
Mendocino	13	Siskiyou	1
Merced	3	Stanislaus	3
Modoc	1	Sutter	5
Monterey	13	Tehama	2
Napa	3	Tulare	20
Nevada	1	Tuolumne	1
Orange	17	Ventura	10
Placer	3	Yolo	9
Riverside	30	Yuba	3

Beside a material general increase in salaries of professors at the end of last year, a special addition of ten per cent for the year was made in the case of all associate and assistant professors whose salaries were less than \$3000. This was granted in recognition of the enhanced cost of living due to the conditions in San Francisco.

In the faculty of instruction the following changes took effect at the close of the year:

In Greek, Associate Professor Henry W. Rolfe was granted sabbatical leave, his place being filled for the year by Dr. Edward W. Hope as instructor. Dr. Hope is a graduate of the University of Pennsylvania. He received the degree of A. M. at Stanford University in 1903 and that of Ph. D. at Johns Hopkins University in 1905.

In Romanic Languages, Assistant Professor Colbert Searles was granted sabbatical leave, his place being taken for the year by Mr. Ernest G. Atkin as instructor. Mr. Atkin is a graduate of Cornell University in the class of 1906. In the same department Mr. Albert L. Guérard has been added as assistant professor of French. Professor Guérard is a native of Paris, a graduate of the École Normal Supérieure at St. Cloud, a fellow of the University of Paris, and during the past year instructor in French at Williams College. In this department also Instructor Stanley Smith, absent on leave for purposes of study, has tendered his resignation, to accept a position in the University of Washington. His work for the current year, as for last year, will be taken by Mr. Homer P. Earle.

In German, Assistant Professor Karl G. Rendtorff has been granted sabbatical leave, his place being taken by Dr. George H. Danton as acting assistant professor. Dr. Danton is a graduate of Columbia University and comes to us from a position in Western Reserve University. Instructor Charles F. Schmutzler has withdrawn from the University, his place being taken by Mr. Herman Hilmer. Mr. Hilmer is a graduate of the University of Michigan. An additional instructor has been appointed on the staff of the German Department, Mr. Bruno Boezinger, a graduate student last year, earlier a pastor in Prussia.

In English, Professor Melville B. Anderson returned from a year's sabbatical leave, spent chiefly in Italy. Assistant Profes-

sor Samuel S. Seward, Jr., was absent during the second semester of the year, in charge of the Department of English in the University of Nevada. For the current year Assistant Professor Lee E. Bassett is absent on sabbatical leave and Assistant Professor Raymond M. Alden will be absent during the second semester. Instructor John K. Bonnell continues absent on leave for purposes of study. Mrs. Theresa P. Russell and Miss Catherine L. Fields have been added to the department as instructors. The latter is a graduate of Stanford University, class of 1903; the former of the State University of Iowa, class of 1895.

In English Philology, Dr. Ewald Flügel has been absent during the year, engaged on the Chaucer dictionary under the grant from the Carnegie Institution. He will be absent for the first semester of the current year engaged on the same work.

In Education, Assistant Professor Henry Suzzallo is absent for the year as acting professor in Teachers' College, Columbia University. His work for the year is taken by Mr Percy E. Davidson as acting assistant professor. Mr. Davidson is a graduate of Stanford University, class of 1898, and has been during the past year director of the Training School of Normal College, New York City. Instructor Frank E. Thompson has accepted the chair of Education in the University of Colorado. For the present his place in the department is left unfilled.

In History, Instructor Payson J. Treat has been absent on leave in Australia and the Orient, studying the economic and social conditions in these regions. For the current year Professor Arley B. Show will be absent on sabbatical leave. His work will be taken by Dr. A. Edward Harvey as instructor. Dr. Harvey is a graduate of Princeton University and holds the degree of Ph. D. from Marburg.

In Economics and Social Science, Associate Professor Albert C. Whitaker returns from a year's leave spent at Columbia University, where he gave a course of lectures on Economics. For the current year Dr. John M. Motley has been appointed assistant professor. Among other courses, a new one on Charities and related subjects will be given by him. Dr. Motley is a graduate of William Jewell College and holds the degree of Ph. D. from Johns Hopkins University. He comes to us from an acting professorship at Wells College.

In Law, the department has suffered a great loss in the resignation of Professor Nathan Abbott, who has accepted a chair in the Law School of Columbia University. An accurate and painstaking scholar, an earnest and devoted teacher, and a man who has placed above all other considerations the ethical side of his work, Professor Abbott has been one of the most valued members of the University faculty. The high reputation of its department of law has been mainly due to his efforts. For the coming year Professor Abbott's classes in Property will be in charge of Mr. Joseph W. Bingham as acting assistant professor. Mr. Bingham is a graduate of the University of Chicago, A. B. and J. D., and comes to us from the Law School of Cornell University. An additional professorship in Law has been created by the appointment of Professor Frederic C. Woodward. Professor Woodward is a graduate of Cornell University Law School and comes to us from a professorship in Northwestern University Law School. Associate Professor Charles H. Huberich has been advanced to a full professorship, Assistant Professor Arthur M. Cathcart to an associate professorship, and Instructor Wesley N. Hohfeld to an assistant professorship.

In Philosophy, two new appointments have been made—Dr. Henry W. Stuart, as assistant professor, and George H. Sabine as instructor. Dr. Stuart is a graduate of the University of California, and received the degree of Ph. D. from Chicago University. He has during the past year been acting professor of Philosophy at Lake Forest University. Dr. Sabine is a graduate, A. B. and Ph. D., of Cornell University.

In Chemistry, Associate Professor Stewart W. Young has been promoted to a professorship, and Assistant Professor Robert E. Swain to an associate professorship. Professor Young was absent during the year on sabbatical leave.

In Geology, Dr. John C. Branner has been granted sabbatical leave for the academic year 1907-08 and will spend it in geological work in Brazil. Mr. Luther W. Bahney has been added as instructor in Mining and Metallurgy in the department. Mr. Bahney is a graduate of the University of California.

In Bionomics, Acting Instructor Robert E. Richardson has resigned to accept a position in the University of California. Miss Mary C. Dickerson has been appointed to fill the vacancy.

Miss Dickerson is a graduate of the University of Chicago and has recently been a teacher in the State Normal School of Rhode Island.

In Drawing, Mr. Robert B. Harshe has been appointed instructor in place of Miss Florence Lundborg, resigned. Mr. Harshe is a graduate of the University of Missouri, since engaged as an art teacher in the city of New York.

In Hygiene, Dr. Edith E. Johnson has been appointed assistant. Dr. Johnson is a graduate of the Medical Department of Cornell University.

A generous appropriation has been made by the Board of Trustees in the interests of the development of out-door gymnastics. The policy of ample provision on the part of the University authorities for athletic training in the interest of physical and moral health, while all expense of intercollegiate competition is borne by the student body, has been adopted.

In Applied Mathematics, Professor Halcott C. Moreno has received sabbatical leave for the year, his place being filled by Mr. J. D. Suter as instructor. Mr. Suter is a graduate of the University of Wisconsin. Mr. William A. Manning has been advanced from the position of instructor to that of assistant professor. The department has been further strengthened by the appointment of Mr. Sidney D. Townley as assistant professor and Mr. Edward Jordan as instructor. Dr. Townley is a graduate of the University of Wisconsin, having received his doctor's degree from the University of Michigan. He has recently been astronomer at the International Latitude Observatory at Ukiah, California. Mr. Jordan is a graduate of the University of Sydney, Australia, and has been for a time instructor in Physics and Mathematics in St. Peter's College at Adelaide.

In Civil Engineering, Mr. Frank H. Foss has been appointed instructor in place of Professor J. C. L. Fish, still absent on leave. Mr. Frederick H. Fowler has been made instructor in place of Mr. H. H. Hall, who has withdrawn to enter practical work. Mr. Foss is a graduate of Stanford University in the class of 1903, and Mr. Fowler in the class of 1905.

In Mechanical Engineering, Mr. Everett P. Lesley has been added as instructor. Mr. Lesley is a graduate of Stanford University in the class of 1897. Mr. Julius E. Peterson, who has

been foreman of the Forge Shop since the opening of the University, has withdrawn on account of ill health, his place being taken by Mr Robert Harcourt as instructor.

In Electrical Engineering, Assistant Professor Kenneth L. Curtis has resigned and his place has been filled by the appointment of Mr. W. A. Hillebrand as instructor. Mr. Hillebrand is a graduate of Cornell University and has been a student at Stanford University.

In the Library, the position of Librarian, vacant for some years and temporarily filled by Associate Librarian Melvin G. Dodge, is now filled by the appointment of Mr. George T. Clark. Mr. Clark is a graduate of the University of California and comes to us from the librarianship of the Public Library of San Francisco.

The summer of 1906-07 has been spent by the President in a visit to Australia in response to a request from the University of Sydney that he should give a course of lectures on the organization and ideals of American universities. After the completion of the course at Sydney in June he was asked to give one or more lectures of a similar character in each of the other universities and colleges of Australia and New Zealand. He was able to accept these invitations and speak at the universities of Melbourne and Adelaide, and at Brisbane, at Canterbury College, Christchurch, Victoria College, Wellington, and at University College, Auckland.

As a means for the development of closer relations with our sister institutions in Australia arrangements have been made for the occasional interchange of professors between Stanford University on the one hand and some of these Australian institutions on the other.

A study of the athletic conditions in the Australian universities has confirmed the belief that the abolition of the American game of football in the California universities was a wise and necessary act and that the Rugby game as played in Australia and New Zealand, as well as in England and Canada, is a most desirable substitute. In the Rugby game the presence of a professional coach is not a necessity. The game is a sport and not a battle, and the unattractive and dangerous plays known as "mass-plays" and "interference" are not allowed.

The following list of publications by members of the faculty may be here cited as showing their literary and scientific activity during the year:

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- ANGELL, FRANK:** On judgment of "like" in discrimination experiments: *American Journal of Psychology*, 18; April, 1907. (with J. E. Coover) General practice effect of special exercise, *ibid.*, 18; July, 1907.
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- YOUNG, STEWART WOODFORD: (with W. E. Burke) Hydrates of sodium thiosulphate: *American Chemical Journal*, 28; March, 1906.

The American university of to-day is a compound of two divergent and more or less antagonistic elements, which, in the current academic language, we call the college and the university.

The college is in theory a place for general culture, for training the mind, broadening the intellectual horizon, and, so far as may be, making, by tasks physical, moral and mental, a man or woman better fitted for the work of the world. The university is a place of training for one's specific duties in life. Its functions include training for professional work, whatever the profession may be. Its general method is that of instruction through investigation, and its relation to the student is in many ways different from the task-setting work of the college. It demands for its teachers a

somewhat different talent, that of creative work, and of the power and the will, in one way or another, to add to the sum of human knowledge.

Our colleges are English in their origin. Our universities are German in their inspiration and method. Thus far in America the one has in a way antagonized the other. There has been a tendency to build up the university work by neglect of the collegiate work. Very many institutions have given instruction in professional or technical subjects of university grade to students who have had no collegiate training, often even no work of the still lower grade we call secondary instruction. On the other hand, the college has gradually pushed itself upward, relegating its lower years to the secondary school, and absorbing two of the years which would naturally belong to the university. In most of our larger institutions the fourth collegiate year is frankly given to investigation or to the beginnings of university work. In fact, though not in name, it belongs to the university rather than to the college. In a general way the admission to the German university,—or graduation from the secondary school, Gymnasium or Real-Schule,—corresponds with the end of the sophomore year in the best organized American colleges. In England, where the university as such is still in a state of probation, the conditions are not very different, so far as degree of advancement on the part of the student is concerned.

Recognizing these conditions, there is a strong movement in Germany to introduce the American college, to set off the last years of the Gymnasium or Real-Schule, as an intermediate stage between the local preparatory school and the school of technical training and investigation.

In America there is a tendency to separate the college into two parts: the junior college, of two years, in which the work is still collegiate, and the university college, in which the work of the university begins. This separation, first accomplished in the University of Chicago, is still little more than a name. About the University of Chicago many collegiate institutions have become junior colleges, that is, institutions which recommend some or all of their students to the universities at the end of the sophomore year. This arrangement is in many ways desirable. It is better for the university to be as far as possible free from the

necessity of junior college instruction. It is better for the student at this period to enter an institution with large faculty and large resources. Furthermore, if the junior college has the teachers and conditions it ought to have, it is in very many cases better that the student should take his early training there, rather than as a member of the enormous mass of freshmen and sophomores our great colleges are now carrying.

It is safe to prophecy that before many years the American university will abandon its junior college, relegating its work to the college on the one hand and to the graduate courses of the secondary schools on the other. Under these conditions the discipline and the methods of instruction of the American university will approximate those of the universities of Germany and other countries of the continent of Europe. Under these conditions the assistant professor of to-day will mostly find professorships in colleges; the professor will be an original scholar and investigator as well as a teacher, and the rule of *Lerfreiheit* and *Lernfreiheit* will be established as a matter of course. It goes without saying that university conditions in America will differ in many ways from those of Germany. It is not likely that American legislative bodies will make a degree from the university a necessity for professional work, or its absence a bar to preferment. The trained man in America will have to take his chances with the rest, and for a time the "practical" man, or even the ignoramus, may seem to distance him. But in so far as training is genuine, it will justify itself in every walk in life, and its value in the long run will be the more appreciated that it has no official attestation.

Thus far Stanford University has been a large college, well ordered for the most part, giving good instruction and with the highest collegiate standards. Its university work, though not extensive, has justly commanded respect.

The present condition of the University does not represent the original aim of the founders nor the ideal of the President or Faculty. It has been the necessary result of limitation of funds, the long delay of litigation and the final settlement of the estate, with the recent unwelcome disturbance of the earthquake.

The elimination of these factors makes it necessary to look forward to the future. Is Stanford University to be a college or

a university, or a compound of both? In my judgment the last cannot be a permanent condition in any of our large institutions. Collegiate instruction is relatively cheap. It is given well in upwards of two hundred institutions in America, and more or less badly in as many more.

University work on a large scale is expensive. If properly undertaken, it is the choice privilege of the few institutions that are generously endowed, or that are the educational pride of wealthy states.

Among these Stanford University must stand. Its great endowment was given for that purpose, and its freedom from outside control enables it to undertake lines of work, and long-continued series of investigation, efforts of the highest intellectual type, which would not find support in public institutions with their natural tendency towards the demand for immediate results.

In 1892 Governor Stanford said repeatedly that he wanted this institution to combine the technical work of Cornell University with the highest post-graduate work, or work of investigation, at that time best represented by John Hopkins University; that he wished it to be a university in the highest sense, "beginning," to use his own words, "where the State University leaves off." I may say in passing that at that time the University of California was chiefly an undergraduate college. In its present expansion, it has largely begun where it then "left off," and we may admit that it has already gone much further in the realization of the ideals of Governor Stanford than Stanford University has yet gone. But we have time before us, and most things are possible with time and patience.

To make a university, in the world-sense, of Stanford University the following elements seem to me essential:

The elimination as soon as possible—let us say in the course of five years—of the junior college, by the addition of two years to the entrance requirements. This need not necessarily raise the requirements for the bachelor's degree, which would then be as now two years of approved university work beyond the work of the junior college. These requirements are high enough. There is much to be said in favor of lowering them to the level of completion of the junior college course. This would correspond to the bachelor's degree of twenty to thirty years ago. ✓

With this should follow the extension of the university as such and the intensification of the higher work. Especially medicine should be added to its scope of instruction, and other lines of advanced work would naturally follow if the university were relieved from the burden of elementary instruction—of work which is done more or less well in every part of the country.

Unlike the German universities, the American universities must include instruction in the various professions of engineering. This is in Europe generally relegated to a separate institution, the Polytechnicum. The development of the creative phases of engineering is costly, and yet of the highest importance to the material progress of the country.

Besides the increase of equipment, the Library must be greatly enlarged, a process at present going on at a generous rate. It will also be necessary to provide adequate means for the publication of results of scientific, literary and other forms of research. The means for beginning this work has been already provided by your honorable Board.

It will also be necessary to provide means for fellowships and scholarships. The present writer has been strongly opposed to the present fellowship system in America, believing that its evil of hiring men to study in a certain place often outweighs its advantage of furnishing promising men with means of making the most of their period of training. But in a matter of this kind it is not possible for a single institution to stand aloof from its associates, and to demand an adequate return in laboratory or other assistance from each fellow will tend to minimize these evils of the system.

I ask your Board to consider the project of the immediate separation of the junior college from the university or the university college, and to consider the possibility of requiring the work of the junior college as a requisite for admission to the University on and after the year 1913, or as soon as a number of the best equipped high schools of the State are prepared to undertake this work. It seems a necessary proviso in view of the fact that by the terms of the original gift Stanford University must be kept in touch with the public school system of California.

In this connection may be quoted the following pertinent words

from President Pritchett in the second annual report of the Carnegie Foundation for the Advancement of Teaching :

"Whatever may be the advantages of the combination of the college and the university into one organization, I am convinced that it would be of immense value to the educational system of the country if a few strong universities could be established, with generous facilities for social intercourse, but without undergraduate colleges. Such institutions would, if properly endowed and supported, constitute an independent influence in the formation of university standards which could not fail to benefit all universities alike. It is to be regretted that some of the newly founded institutions did not forego the prestige of an undergraduate college for the sake of this leadership.

"Whether the amalgamation of the college and the university into a single organization bearing the name of university is the wisest solution of the type of American institution of higher learning or not, it will be admitted that this action has tended to still further confuse in the minds of the public the distinction between the college and the university, or at least to obscure the fact that the university, as at present organized, has two entirely different functions. This forms an additional obligation upon universities so organized to preserve with care during the period of transition through which we are now passing fair standards for entrance and for study both in college and in university."

One of the most important of all departments of higher instruction is that of Medicine. None of the applied sciences is making such rapid advances and none maintains such vital relations to society and life.

At the time of writing this report arrangements are virtually completed by which the property of Cooper Medical College, founded by Dr. Levi Cooper Lane, will be turned over to Stanford University to serve as the clinical branch of the Department of Medicine of Stanford University. The property thus transferred includes the Medical College building, the landed and other endowment, the Lane Medical Library, Lane Hospital, Lane Hall, and other properties and endowments. The present classes at Cooper Medical College will continue their work and receive their degrees from Cooper Medical College.

It is anticipated that the University will require for admission to its Department of Medicine three years of pre-medical work, or the present first three years required of students having Physiology as a major subject. The first part of the course

in Medicine will be given at Stanford University, the first year being substantially identical with the present fourth or senior year for students having Physiology as a major subject. The concluding years will be given at the present buildings of Cooper Medical College in San Francisco, these being devoted chiefly to clinical studies. Formal medical instruction is expected to begin in 1910, the clinical work in 1912.

Attached to this report will be found the reports of the various departments of instruction, the standing committees of the Faculty, the Registrar, the Librarian, the Chaplain, and the Curator of the Museum.

DAVID STARR JORDAN,
President.

December 31, 1907.

APPENDIX I

DEPARTMENTAL REPORTS

GREEK

The department faculty consists of: Augustus T. Murray, Professor; Henry W. Rolfe, Associate Professor; assisted by Messrs. Fairclough, Elmore, Foster, and Martin of the Latin Department.

The following courses were given :

INSTRUCTOR	COURSE	HOURS WEEKLY	ATTENDANCE OF STUDENTS	
			FIRST SEMESTER	SECOND SEMESTER
Murray.....	4	2	..	7
Murray.....	7	3	8	..
Murray.....	8	3	..	7
Murray.....	16b*	2	12	..
Murray.....	22†	2	87	..
Murray.....	23†	2	..	137
Fairclough.....	4	2	5	..
Fairclough.....	9	2	..	6
Rolfe.....	10†	3	78	134
Rolfe.....	15	3	10	..
Rolfe.....	16	3	..	9
Elmore.....	2	3	23	..
Foster.....	3	3	..	20
Foster.....	9	2	5	..
Foster.....	21b	2	1	..
Martin.....	1	5	15	9

During the year the equipment of the department has been increased by the purchase of several manuscript facsimiles, and the funds assigned to the department for the purchase of books have been expended largely for periodicals (in conjunction with the Latin Department) in order that our sets may be completed. In this matter much remains to be done.

* A course in the Greek Testament, not so numbered in Register.

† Lecture courses.

Mr. Rolfe is to be absent on leave for the year 1907-08, and Mr. E. W. Hope, a former student in this department, has been appointed to act as his substitute. It is highly important that the department faculty be strengthened by the appointment of an additional instructor. The department has taken over the work on Greek history, thereby relieving the History department, but has received no addition to its instructing force, and it is impossible to develop all sides of our work, as we should, while shorthanded. Each year certain courses which should be given, are of necessity omitted. Further, as a part of our apparatus, we need additional maps, models and relief maps. As for the department library, we are still very ill-equipped in certain fields, and our sets of serials are very far from being complete.

Respectfully submitted,

A. T. MURRAY,

Professor of Greek.

LATIN

During the academic year 1906-07 the faculty of the Department of Latin consisted of Professor H. R. Fairclough, and Assistant Professors J. Elmore, B. O. Foster, and E. W. Martin. Professor Murray and Associate Professor Rolfe, of the Greek Department, cooperated in the work of instruction.

The number of major students in Latin was 58 for the first semester, 49 for the second; 16 received the degree of A. B.; 1 that of A. M.

Of the total number of students enrolled in Latin classes (225, first semester: 290, second semester)—omitting courses 32 and 33, which did not demand a knowledge of the language—only 66 (first semester) and 71 (second semester) were non-classical majors. Of these, 31 and 30 (respectively) were majors in Law; 11 and 13 in English; 10 and 9 in History; 7 and 6 in German; 4 and 5 in Romanic Languages.

It will thus be seen that under our elective system Latin is not a popular subject. A reason commonly given is that it is too hard, and, as if to corroborate this view, we find that when courses not involving a study of some Latin text are offered the department has more applicants for admission to them than are welcome. Another reason is that as Latin is the only foreign language in which purely elementary instruction is not offered in the University, many come to look upon it as a "school" subject, and upon other languages as "college" subjects. It is, however, much to be regretted that when students enter Stanford with some knowledge of Latin, they should not be encouraged to continue it for at least a year under experienced University tuition, for the great majority of Stanford students never get beyond the elementary stage in any linguistic study.

All of the instructors are engaged on special studies outside of their class work, but the department is handicapped by a lack of books, and especially by the incompleteness of its sets of philological periodicals. Its general equipment, however, is steadily improving.

Report of the President

27

The commercial spirit of the day does not encourage young men to adopt teaching as a profession. We are quite unable to find male graduates enough to recommend for the many school positions which from time to time are vacant.

INSTRUCTOR	COURSES	HOURS PER WEEK	STUDENTS ENROLLED	
			FIRST SEMESTER	SECOND SEMESTER
Rolfe	1. Cicero and Virgil.....	3	7	8
Elmore	2. Terence, Cicero and Horace..	3	10	10
Foster	2. Terence, Cicero and Horace..	3	12	..
Martin	2. Terence, Cicero and Horace..	3	..	12
Murray	3. Terence, Cicero and Horace..	2	17	18
Martin	4. Prose Composition I.....	2	25	25
Fairclough...	5. Horace, Satires and Epistles	3	25	..
Elmore	6. Livy and Tacitus.....	3	..	22
Elmore	7. Prose Composition II.....	2	22	..
Foster	7. Prose Composition II.....	2	..	17
Foster	8. Roman Comedy.....	2	13	..
Elmore	9. Cicero's Letters.....	2	..	19
Martin	10. Suetonius and Pliny.....	2	20	..
Foster	11. Roman Elegy.....	2	..	15
Fairclough...	13. Prose Composition III	1	14	17
Elmore	14. Juvenal and Martial.....	2	14	..
Fairclough...	15. Quintilian	2	..	5
Fairclough...	16. Prose Composition IV (combined with 13).....	1	3	2
Elmore	17. Teachers' Course.....	2	..	25
Foster	20. Roman History from the Sources	2	4	..
Fairclough...	22. Seminary.....	2	4	5
Fairclough...	23. Reading of Virgil.....	2	4	5
Fairclough...	24. Palaeography.....	1	5	..
Martin	25. Epigraphy.....	1	..	10
Foster	26. Comparative Grammar.....	2	2	2
Martin	32. Roman Private Life.....	2	24	..
Elmore	33. Roman Political Institutions	2	..	83

H. RUSHTON FAIRCLOUGH,
Professor of Latin.

GERMAN

At the opening of the academic year 1906-07, the teaching staff of the department consisted of Professor James O. Griffin, Assistant Professors Karl G. Rendtorff, William A. Cooper, Macy M. Skinner, and Instructors Charles F. Schmutzler, and Bruno Boezinger, aided by two assistants. At the opening of the second semester I took up my work in the department.

There were registered in the department during the year 95 major students, of whom 3 were graduates, 92 undergraduates. No special students were registered in the department.

The following tabular statement will give some idea of the work of the department for each semester:

INSTRUCTOR	COURSE	HOURS CREDIT	ATTENDANCE	
			FIRST SEMESTER	SECOND SEMESTER
Cooper, Boezinger.	1. Elementary German....	5)	98	82
Skinner	1. Elementary German ..	3)		
Griffin, Cooper, Skinner, Schmutz- ler, Boezinger ..	2. Second-year German....	3	143	126
Griffin, Skinner, Schmutzler, Boezinger	3. Rapid Reading	2	124	89
Hempl, Cooper..	4. Advanced Grammar....	2	12	11
Griffin.....	5. Modern Drama.....	2	39	30
Griffin, Rendtorff.	6. Classical Drama.....	3	63	56
Skinner	7. Modern Novels.....	2	23	25
Schmutzler	*8. Composition	2	61	48
Rendtorff	9. Advanced Composition..	2	21	20
Cooper	11. Goethe's Faust.....	2	52	39
Rendtorff.....	12. History of Literature...	2	24	26
Hempl	14. Teaching German.....	2	..	27
Rendtorff	15. Syntax	2	4	5
Rendtorff	16. Middle-High German...	2	8	7
Hempl	19. Gothic	2	..	3
Hempl	20. Genesis of Grammar...	2	..	12
Rendtorff	21. Middle-High German Sem	2	3	4
Skinner	22. Schiller's Dramas (Sem).	2	3	4
Griffin	23. Modern Writers.....	2	5	..
			683	614

GEORGE HEMPL,
Professor of German Philology.

ENGLISH LITERATURE AND RHETORIC

The faculty of the department consisted of Melville Best Anderson and Alphonso Gerald Newcomer, professors; Raymond MacDonald Alden, Samuel Swayze Seward, Jr., Howard Judson Hall, Lee Emerson Bassett, Henry David Gray, and William Dinsmore Briggs, assistant professors; Frederick Alexander Manchester, instructor; Theresa Peet Russell, Catherine L. Fields, Edith R. Mirrielees, Walter Y. Wentz, Louise K. Fleming, Alice M. Robbins, and Helen Thoburn, assistants.

Professor Anderson was absent on leave in Italy during the year. In September he attended the tercentenary celebration of the University of

* Three sections.

Aberdeen, Scotland, as a delegate from Stanford University, and was there honored with the degree of Doctor of Laws.

ENGLISH LITERATURE AND RHETORIC

INSTRUCTOR	COURSE	HOURS PER WEEK	NUMBER OF STUDENTS	
			FIRST SEMESTER	SECOND SEMESTER
Bassett.....	1. Vocal Expression (2 sections)	2	62	48
Bassett.....	2. Vocal Interp. Lyric Poetry...	2	14	..
Bassett.....	3. Vocal Interp. Dramatic Lit.	2	..	17
Bassett.....	4. Public Speaking.....	2	27	25
Hall, Gray, Manchester	5. Introduction to Prose (4 sections).....	3	226	..
Hall, Gray, Manchester	6. Introduction to Poetry (4 sections).....	3	..	233
Russell.....	7. Prose Narrative.....	3	..	65
Seward, Hall, Gray, Briggs, Manchester.	8. English Composition (9 sections).....	2	233	217
Alden.....	9a. Argument.....	3	30	..
Hall.....	9b. Exposition.....	2	..	9
Alden, Duni- way, Bassett	10. Oral Debate.....	2	15	15
Seward.....	11. Advanced Narration.....	1	29	29
Seward.....	12. Teachers' English.....	3	16	..
Gray.....	15. Outline Hist. English Lit....	3	46	46
Seward, Gray.	16. Early English Drama.....	2	16	13
Hall, Alden..	18. 18th Century Literature.....	3	62	42
Newcomer, Bassett....	19. Victorian Poets.....	3	62	62
Briggs.....	21. American Literature.....	3	54	..
Newcomer...	22. Early 19th Century Poets....	3	33	..
	22. Byron, Shelley, Keats.....	2	..	50
Alden.....	25. Shakespere.....	3	..	34
Briggs.....	26. Early Hist. English Literature	3	26	26
Newcomer...	27. Thesis.....	1	..	3
Newcomer...	28. Development of English Prose	2	9	8
Alden.....	30. History of Criticism.....	2	6	6

ENGLISH PHILOLOGY

Seward, Briggs.....	1. Anglo Saxon.....	3	29	24
Alden.....	2. Chaucer.....	3	35	..
			1030	972

Eight graduate students and five special students were registered in the department. Two students completed studies leading to the degree of M. A.

Associate Professor Newcomer was made professor and appointed executive head of the department. Instructor Gray became assistant professor at the beginning of the year; and Assistant Professor Briggs, from Western Reserve University, was added to the staff. Instructor E. K. Putnam of the previous year resigned to become director of the Academy of Sciences at Davenport, Iowa. Instructor J. K. Bonnell, absent on leave, remained in Europe. In January, Assistant Professor Seward was granted leave of absence for one semester to take charge of the English department at the University of Nevada, Reno. The following appointments were made for the year 1907-08: Mrs. Theresa Peet Russell and Miss Catherine Leota Fields, instructors.

Dr. Ewald Flügel, of the department of English Philology, remained absent in Germany, engaged upon the Chaucer Dictionary under the Carnegie Institution grant. Classes in this department were conducted by Assistant Professors Alden, Seward, and Briggs.

A. G. NEWCOMER,
Professor of English.

ROMANIC LANGUAGES

During the year 1906-07 the faculty of the department consisted of Professor John E. Matzke, Associate Professor Oliver M. Johnston, Assistant Professor Colbert Searles, and Instructors Clifford G. Allen and Homer P. Earle, the latter filling the place of Instructor Stanley Smith, who was on leave of absence studying in Europe.

Miss Lillian Fleisher, Mr. Edwin Hume Skinner, and Miss Mercedes de Luna acted as Assistants and Readers.

INSTRUCTOR	COURSE	NO. OF SEC- TIONS	HOURS WEEK- LY	ATTENDANCE	
				FIRST SEMESTER	SECOND SEMESTER
Johnston, Oliver M.	1. Elementary French.	4	3	110	80
Searles, Allen	2. Modern Fr. Syntax.	2	2	43	35
Searles, Earle	3. Modern Fr. Reading	3	3	81	72
Johnston, Allen	4. Fr. Conversation...	2	3	29	22
Johnston, Allen	5. Classical French...	1	3	31	31
Searles, Allen	6. Classical Fr. Lit...	1	2	17	10
Matzke, John E.	7. 19th Cent. Fr. Lit...	1	2	13	11
Matzke, John E.	8. Advanced Fr. Comp.	1	2	22	14
Johnston, Oliver M.	9. French Themes...	1	1	10	12
Allen, Clifford G.	10. Elementary Spanish	2	3	79	60
Earle, Homer P.	11. Modern Sp. Syntax.	1	2	15	12
Allen, Clifford G.	12. Modern Sp. Reading	2	2	26	22
Earle, Homer P.	13. Sp. Conversation...	1	3	18	12
Allen, Clifford G.	14. Classical Spanish...	1	2	10	10
Allen, Clifford G.	15. Advanced Sp. Comp	1	2	5	4

Toward the end of the year Mr. Clifford G. Allen was promoted to an Assistant Professorship, and Mr. Albert Guérard was appointed as Assistant Professor of French, his work to begin in September, 1907. Mr. Guérard is an agrégé of the University of Paris, and fills the place left vacant by the resignation of Mr. Piere Comert.

The number of major students registered in the department was 23, divided as follows: graduate students 3, undergraduate students 19, special student 1. Of this list 7 received the degree of A. B. The degree of A. M. was granted to Miss Lillian Fleisher (B. L., University of California, '04), her thesis being on the subject "The Précieux Movement and the Drama of the Seventeenth Century."

Fifteen undergraduate courses were given during the year, representing fifty-seven hours of instruction per week. The foregoing table gives an outline of this work, together with the registration during each semester.

The graduate instruction during the year consisted in the following courses:

INSTRUCTOR	COURSE	LECTURES PER WEEK	ATTENDANCE	
			FIRST SEMESTER	SECOND SEMESTER
Matzke	22. Old French Literature...	2	3	3
Matzke	23. Fr Historical Graminar..	3	2	2
Johnston.....	24. Old French Texts	2	3	3
Matzke	28. Seminary.....	2	3	3

The work of the seminary centered in Corneille and the dramatic theories of the renaissance and the seventeenth century.

JOHN E. MATZKE,
Professor of Romanic Languages.

PSYCHOLOGY AND PHILOSOPHY

The department staff consisted of Frank Angell, Professor of Psychology, and Miss Lillian J. Martin, Assistant Professor; Miss Esther J. Crandall, laboratory assistant.

Instruction in Psychology was given as follows:

INSTRUCTOR	COURSE	HOURS WEEKLY	ATTENDANCE	
			FIRST SEMESTER	SECOND SEMESTER
Angell	1	3	105	91
Angell	2	2	8	8
Angell	4	3	3	3
Angell	7	1	3	3
Ange	10	5	2	2

During the year Assistant Professor L. J. Martin was abroad on sabbatical leave of absence.

The sum of \$500 appropriated for laboratory equipment this year, will, if continued as a regular appropriation, be sufficient to provide materials necessary for the routine work, and to supply the more expensive apparatus demanded for special investigations.

Of the \$487 appropriated for books for Psychology and Philosophy, the greater part was devoted to the latter subject in view of the contemplated reorganization of the department. It is to be hoped that in the near future a special library appropriation can be made for Philosophy, which is much behind the rest of the University in the matter of library equipment.

During the spring of 1907, Dr. H. W. Stuart, Acting Professor of Philosophy at Lake Forest University, was appointed Assistant Professor of Philosophy, and Dr. G. H. Sabine, Assistant in Philosophy at Cornell University, was appointed Instructor in Philosophy, their work to begin with the academic year 1907-08.

FRANK ANGELL,
Professor of Psychology.

EDUCATION

The department faculty for the year was as follows: Ellwood P. Cubberley, Professor; Henry Suzzallo, Assistant Professor; *Frank E. Thompson, Instructor; and Rebecca Beatrice French, Assistant.

During the past year the following courses were offered by the members of this department:

INSTRUCTOR	COURSE	HOURS PER WEEK	ATTENDANCE	
			FIRST SEMESTER	SECOND SEMESTER
Cubberley...	1. Public Educ. in America...	2	92	81
Suzzallo.....	3. Hist. Educ. in Europe.....	3	61	78
Suzzallo.....	4. Sources Hist. Educ. Europe	2	15	14
Suzzallo.....	5. Hist. Educ. in America.....	2	40	..
Suzzallo.....	7. Secondary Education.....	3	..	44
Cubberley....	9. City School Administration.	2	7	7
Cubberley....	10. State School Administration	3	11	11
Cubberley....	19. Special Courses.....	3-5	1	2
Suzzallo.....	19. Special Courses.....	2	..	7
Cubberley....	20. Journal Club.....	1	18	29
Cubberley....	21. Practice in Teaching.....	4	..	2

In addition to the above work each of the two members of the department answered calls for a number of lectures in different parts of the state. Professor Suzzallo also spent the past summer in San Francisco, acting as

* To have begun work in September, 1907

an Assistant Superintendent of City Schools, and rendered valuable service in the rehabilitation of the school system there. Professor Curberry also lectured on School Administration at Columbia University during the past summer.

At the close of the year Professor Suzzallo was borrowed for two years by Columbia University, where he probably will be retained permanently. He was given a leave of absence to accept the appointment. Instructor Thompson, who was absent during the year on leave for study, resigned, before returning, to accept a professorship at the University of Colorado. Miss French also resigned at the close of the year to engage in other work. For Professor Suzzallo's place we were able to secure Mr. Percy E. Davidson, but no one has as yet been secured to take up the work Mr. Thompson was to have done. Mr. J. B. Sears, an advanced student, succeeds Miss French as department Assistant.

The members of the department have had little time to direct much advanced work on the part of students, because of the heavy demands made upon their time and energy by the large classes. Three students last year, however, were engaged in bona fide advanced special work, looking toward the doctor's degree, here or elsewhere. Two will spend the coming year in eastern universities, while one will remain. The work of these students was handled in addition to regular class work, but in a manner somewhat unsatisfactory to the instructors. The head of the department has been made one of the editors of the *Journal of Pedagogy*, a national magazine which has already passed through nineteen volumes. The *Journal* is now being reconstructed, and it will be issued in the future by a leading Boston publishing house.

During the year the department has been able to secure a large collection of old school reports and volumes on education. These will form important additions to our already large special collection. A part of the collection was secured from Teachers' College at Columbia University, being the duplicates resulting from the consolidation of two libraries. The collection relates to the history and administration of education in the United States and Great Britain. The four units of library appropriation which we now receive should be left unchanged for at least ten years to come. The needs of the department in the line of apparatus and equipment are relatively small.

The greatest need of the department to-day is a third man, of good quality and the right kind of training, to round out the work of the department and enable us to offer a more balanced course of instruction to our students. This would also relieve somewhat the pressure of mere instruction on all and would enable us to devote more personal attention to our advanced students.

Our graduates have no difficulty in securing good positions, both from the point of view of salary and the point of view of the importance and the value of their work. Each year we have many calls for men which we cannot fill. The average salary of our graduate for the past eight years is

now about \$1800. This is relatively if not actually large. The usefulness of these men cannot be measured in terms of their salary, though, for they are engaged in a form of social service which the world has not as yet come to value at its real worth. Education is one of a small group of social-engineering subjects which is yearly becoming of more importance in our national life, and the man trained for leadership in education goes out to do a service of far-reaching importance. From one to three of our graduates are each year doing advanced work in eastern institutions, and the graduates of this department during the past eight years are to-day scattered widely over the United States, many holding positions of importance in the educational world.

In addition to the training of men to render service it ought to be the mission of a department of education in this University to contribute to the organization of the field. Few departments of education have turned in this direction, and many are so burdened with the preparation of high school teachers that they have not time or energy for contributive work. We are peculiarly situated here, and with good men and a little more opportunity for advanced work it ought to be possible for this department to render a good account of itself as the years go by.

ELLWOOD P. CUBBERLEY,
Professor of Education.

ECONOMICS AND SOCIAL SCIENCE

The work of the department for the year 1906-07 was carried on by Associate Professors Allyn A. Young, Thorstein B. Veblen, and Assistant Professor Henry A. Millis. Assistant Professor Albert C. Whitaker, who spent the year in New York on leave of absence, gave a course of lectures at Columbia University.

The courses given in the department were as follows:

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Veblen.....	16. Econ. Factors in Civilization.	3	..	8
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Mention should also be made of the fact that Mr. Ira B. Cross, department assistant, gave much more than the amount of work that is usually claimed from an assistant.

Assistant Professor Whitaker was promoted to an Associate Professorship. A new appointment, taking effect August, 1907, was that of Dr. James M. Motley, Acting Professor of Economics in Wells College, as Assistant Professor. Mr. Motley received the degree of Doctor of Philosophy from Johns Hopkins University in 1906, and was for some time the acting secretary of the Baltimore Charity Organization Society. Dr. Motley will offer special courses in the field of charities and corrections and allied social problems. The addition of this work marks a step forward in the development of an important part of the work of the department—the offering of courses which will give direct technical training for certain vocations in which technical economic training is necessary or advantageous. The establishment of a special training course in statistical methods is another step in the same direction. There is an important and growing demand on the part of government bureaus and private corporations for men with a thorough equipment in economics and statistics.

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ALLYN ABBOTT YOUNG,
Associate Professor of Economics.

Leland Stanford Junior University

HISTORY

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Mr. Treat was absent on leave during 1906-07, spending the year in the Far East in preparation for his work at Stanford. The field of his studies is that of the history of the countries of the Pacific Ocean. The subject is somewhat new in American universities, and Mr. H. C. Hoover, '95, has authorized the expenditure of \$1,000, and Mr. Dean P. Mitchell, '96, \$250, for the purchase of books in this field, which are to be presented to the University Library.

Throughout the year, 1906-07, Professor Show continued at the Pacific Theological Seminary the course of lectures on Ancient and Medieval History, which he had given the previous year.

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Farrand.	2. Training	1	34	28
Show	3a & 3b. Middle Ages	3	101	98
Cannon	4a & 4b. English History	3	140	146
Adams	5a & 5b. Modern European Hist.	2	115	102
Duniway	6. American Colonial History	3	55	56
Farrand	9. Westward Movement	3	..	124
Cannon	11b. England since 1754	2	26	..
Cannon	11c. Eng. Colonization & Empire	2	..	34
Show	12. Empire and Papacy	2	10	..
Show	14. Italian Renaissance	1	..	12
Adams	15. Europe since 1789	2	21	17
Show	16. Teachers' Course	2	..	17
Duniway	17. Modern Constitutional Govts.	3	40	58
Duniway	20. Oral Debate	2	17	14
Department..	21. Historical Composition	1	2	2
Farrand	22. Bibliography and Criticism	2	32	..
Show	27. Painting of Ital. Renaissance	1	5	4
Cannon	29. Magna Charta	2	..	8
Farrand.	32. U. S. Constitution	2	21	14
Farrand.	33. California	2	..	6
Adams	35. Eng. Colonization in Australia	3	1	..
Duniway	38. Federal Relations of California	2	12	15
			681	788

MAX FARRAND,
Professor of History.

LAW

During the session of 1906-07 the teaching force of the department consisted of Associate Professor Charles H. Huberich, Assistant Professor Arthur M. Cathcart, and Instructors Leon P. Lewis, Wesley N. Hohfeld, and Charles A. Huston. Mr. George Henry Boke, Associate Professor of Jurisprudence in the University of California, gave the course in Property I. In the absence of Professor Abbott, Professor Huberich was acting executive head.

Professor Abbott was absent on sabbatical leave during the year, and was engaged in giving lectures in the Law School of Columbia University. In the course of the year Professor Abbott tendered his resignation, and Mr. Lewis declined a reappointment. At the close of the year Mr. Frederick C. Woodward, Professor of Law at Northwestern University Law School, was elected to a professorship, and Mr. Joseph W. Bingham, Acting Assistant Professor at the College of Law of Cornell University, was elected to an acting assistant professorship. Mr. Huberich was promoted to a professorship, Mr. Cathcart to an associate professorship, and Mr. Hohfeld to an assistant professorship.

The registration of students during the first semester was 272, of whom 13 were graduate, 239 undergraduate, and 20 special students. The registration of the second semester was 260, of whom 14 were graduate, 226 undergraduate, and 20 special students.

The courses of instruction given, and the enrollment in each, were as follows:

INSTRUCTOR	SUBJECT	HOURS PER WEEK	NUMBER OF STUDENTS	
			FIRST SEMESTER	SECOND SEMESTER
Entire Faculty.	1. Elementary Law.....	3	169	148
Cathcart.....	2. Contracts	3	71	66
Huberich.....	3. Criminal Law	2	71	57
Lewis	4. Torts.....	2	92	80
Boke.	5. Property I.....	3	51	41
Hohfeld.....	6. Equity I.....	2	44	41
Huston	7. Agency.....	2	67	62
Lewis	8. Bills and Notes.....	4	..	9
Cathcart.....	9. Damages	2	25	..
Hohfeld.....	10. Equity II (Trusts).....	2	24	18
Hohfeld.....	11. Evidence	3	25	19
Huston	12. Insurance	3	..	20
Cathcart.....	14. Pleading.....	2	21	17
Cathcart.....	16. Public Service Cos.....	2	..	25
Huston	20. Admiralty	2	..	15
Huberich	21. Conflict of Laws	2	9	8
Huberich	22. Constitutional Law.....	3	6	6
Lewis	23. Corporations	4	20	..
Huston	24. Equity III.....	2	14	..

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Duniway	17. Modern Constitutional Govts.	3	40	58
Duniway	20. Oral Debate	2	17	14
Department..	21. Historical Composition.....	1	2	2
Farrand.....	22. Bibliography and Criticism..	2	32	..
Show	27. Painting of Ital. Renaissance	1	5	4
Cannon.....	29. Magna Charta	2	..	8
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Farrand.	33. California.	2	..	6
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			681	788

MAX FARRAND,
Professor of History.

tion of remedying this difficulty, but there is every reason to continued increase in the enrollment in these classes. The accompanying table shows in detail the courses given during the

INSTRUCTOR	COURSE	UNITS	STUDENTS ENROLLED	
			FIRST SEMESTER	SECOND SEMESTER
Janning, Hall	1. Algebra	5	168	..
Janning, Hall	2. Solid Geometry.....	2	39	..
Janning, Moreno, Hall	3. Trigonometry.....	3	107	88
Janning, Hall	4. Co-ordinate Geometry...	5	...	130
Janning, Hall	5. Calculus.	5	...	...
Janning, Hall	6. Scientific Drawing.....	2 to 5	..	33
Janning, Hall	7. Scientific Drawing.....	2 to 5	..	6
Janning, Hall	10. Teachers' Course.....	2	..	7
Janning, Hall	11. Design	2	25	18
Janning, Hall	12. Illustration.	2	19	15
Janning, Hall			220	172

Courses 1, 2, 3, 4, 5 and 9 are laboratory courses. Courses 6, 8, 10, 11 and 12 were lecture courses with independent laboratory work done by students.

A number of graduates from this department obtained teaching positions during the year. Our facilities for preparing teachers of art for high school work would be improved by the addition of instruction in handicraft. This can be done at small expense by using the rooms of the old studio building. The department has need of lantern slides and facilities for their use in general lectures on art.

A. B. CLARK.

Associate Professor of Drawing.

MATHEMATICS

The personnel of the department faculty was as follows: Robert Edgar Allardice, Professor; Rufus Lot Green, Professor; Hans Frederik Blichfeldt, Associate Professor.

Professor Allardice and Associate Professor Blichfeldt contributed papers to both of the meetings of the San Francisco section of the American Mathematical Society.

In the course on the Theory of Linear Groups given the first semester by Associate Professor Blichfeldt, and in the course on Differential Geometry, given the second semester by Professor Allardice, the attendance was com-

prised almost entirely of instructors in the departments of Pure and Applied Mathematics.

The courses given were as follows:

INSTRUCTOR	COURSE	HOURS WEEK- LY	ATTENDANCE	
			FIRST SEMESTER	SECOND SEMESTER
Blichfeldt....	1. Trigonometry.....	2	47	..
Blichfeldt....	2. Solid Geometry.....	2	..	30
Green.....	3. Algebra.....	5	20	..
Green.....	4. Co-ordinate Geometry.....	5	..	22
Blichfeldt....	6. Non-Euclidean Geometry....	2	..	6
Blichfeldt....	7. General Course.....	3	23	12
Allardice....	9. Calculus.....	3	14	15
Green.....	10. Co-ordinate Geometry.....	2	7	7
Allardice....	11. Advanced Calculus.....	2	4	..
Allardice....	12. Theory of Functions.....	2	..	6
Blichfeldt....	15. Differential Equations.....	3	5	5
Green.....	18. Modern Co-ordinate Geom...	2	4	4
Allardice....	21. Projective Geometry.....	2	11	7
Allardice....	22. Theory of Curves.....	2	1	..

I believe that within the last few years every graduate of the department who has desired a position in a school or college has obtained such a position.

R. E. ALLARDICE,
Professor of Mathematics.

APPLIED MATHEMATICS

The teaching force for the year 1906-07 consisted of L. M. Hoskins, Professor; H. C. Moreno, Assistant Professor; W. A. Manning, Instructor (promoted during the year to the rank of Assistant Professor); W. O. Mendenhall, Instructor. The following student assistants were employed during the year: R. D. Brackett, C. F. Elwell, G. W. McDaniel, C. H. Paxton, E. G. Sheibley, Donald Steel, and H. R. Thomas.

Instructor Mendenhall resigned at the end of the year to accept a professorship in Earlham College, and Assistant Professor Moreno was granted leave of absence for the year 1907-08.

New appointments for the ensuing year were made as follows: S. D. Townley, Assistant Professor; J. D. Suter, Instructor; Edward Jordan, Instructor for the second semester; C. F. Elwell, Acting Instructor for the first semester.

The main part of the work of the department was devoted to the courses required of all students of engineering. The large number of these students has made it necessary to organize these courses into larger sections than would be desirable in the interest of the highest efficiency. The increased force of instructors for 1907-08 makes it possible to move in

the direction of remedying this difficulty, but there is every reason to expect a continued increase in the enrollment in these classes.

The accompanying table shows in detail the courses given during the year:

INSTRUCTOR	COURSE	UNITS	STUDENTS ENROLLED	
			FIRST SEMESTER	SECOND SEMESTER
Moreno, Manning, Mendenhall	1. Algebra	5	168	..
Manning	2. Solid Geometry.....	2	39	..
Moreno, Manning. Manning, Moreno. Mendenhall	3. Trigonometry.....	3	107	88
Moreno, Manning, Mendenhall	4. Co-ordinate Geometry...	5	...	130
Mendenhall	5. Calculus.....	3	94	77
Hoskins.....	6. Theoretical Mechanics..	5	97	79
Moreno.....	7. Adjust. of Observations.	2	..	7
Hoskins.....	*3a. Hydraulics	3	..	75
Hoskins.....	*3b. Hydraulic Motors.....	3	51	..

L. M. HOSKINS,
Professor of Applied Mathematics.

PHYSICS

The faculty of the Physics Department for the year 1906-07 consisted of Professor Sanford, Associate Professor Stearns and Assistant Professors Rogers, Drew and Brown. There were also employed as laboratory assistants Miss Shirley Hyatt and Messrs. Wendell P. Roop, George A. Tarbell and Perley A. Ross, the latter not assisting in instruction. Professor Stearns was absent on sick leave during the entire year. Mr. Joseph Grant Brown was promoted from Instructor to Assistant Professor during the year.

On account of the partial destruction of the Physical Laboratory and the breakage of apparatus by the earthquake the work of the department was done under unfavorable conditions, and no investigation was carried on in the department. The library facilities of the department were increased during the year by the purchase of a complete set of the Fortschritte der Physik and two back series of the Philosophical Magazine. With the continuation of the present library appropriation it will be possible to complete the sets of journals most needed in a few years.

The attendance of major students in the department continues to be very small. Since all the lines of applied Physics have been represented by independent departments the number of students specializing in Physics

* Scheduled under Engineering.

has been very small in all the universities of the country, and the number now seems insufficient to supply the demand for teachers of Physics in the colleges and high schools of the country. The demand made upon the department for properly qualified teachers of Physics is now much greater than it can supply. One effect of this demand is to call most of the graduates to teaching positions as soon as they are able to secure the required certificates, and very few are taking graduate work in Physics in any of the universities of the country.

The courses given in the department during the year, with the attendance in each class, are given in the following table:

COURSE	INSTRUCTOR	LECTURE UNITS PER WEEK		LAB. UNITS PER WEEK		ATTEND- ANCE	
		FIRST SEMESTER	SECOND SEMESTER	FIRST SEMESTER	SECOND SEMESTER	FIRST SEMESTER	SECOND SEMESTER
1. Dynamics.....	Brown with lab. Assts. Hyatt and Roop.....	1	1	6	5	39	22
2. Elec. and Magnetism	Drew with lab. Asst. Roop.....	..	1	..	3	..	26
3. Heat	Sanford with lab. Asst. Hyatt.....	..	1	..	2	..	6
4. Sound	Brown.....	..	..	2	..	10	..
5. Elementary Optics..	Sanford .....	..	..	3	3	6	9
6a. Engineering Physics	Drew with lab. Asst. Hyatt.....	3	..	3	..	50	..
6b. Engineering Physics	Rogers with lab. Asst. Tarbell ..	..	3	..	2	..	30
7. Elec. and Magnetism	Rogers with lab. Asst. Tarbell...	2	..	4	..	38	..
8. Advanced Optics....	Sanford .....	..	..	..	2	..	5
9. Elec. Measurements.	Rogers with lab. Asst. Tarbell. ..	1	1	3	3	19	7
10. Analytic Mechanics	Drew.....	..	4	..	..	..	4
11. General Physics	Sanford.....	4	4	..	..	7	6
13. Teachers' Physics. .	Sanford.....	1	1	..	..	3	3
15. Vibratory Motion...	Rogers	3	..	..	..	4	..
16. Kinetic Theory.....	Rogers .....	..	2	..	..	..	1
Seminary.....	Sanford .....	..	2	..	..	..	1

I would respectfully recommend in this connection the establishment of a number of permanent laboratory assistantships with salaries sufficient to pay the necessary living expenses of the holders and a teaching requirement of three or four afternoons per week. Much of the laboratory work can be efficiently and economically done by laboratory assistants of this grade. If possible, graduate students who wish to do advanced work should be selected for these positions.

The work of the department would also be greatly facilitated by the appointment of a reliable laboratory janitor with some mechanical training who could be entrusted with the care of the apparatus and supplies.

FERNANDO SANFORD,
Professor of Physics.

CHEMISTRY

The staff in Chemistry for the year 1906-07 comprised Professors John Maxson Stillman, Lionel Redmond Lenox, Edward Curtis Franklin; Associate Professor Robert Eckels Swain; Instructors James Pearce Mitchell, William Henry Sloan; Acting Instructor William Edmund Burke, and student assistants William G. Bateman, Jacob M. Price, Dane Manson Greer, Berton Woodford Crandall, Dennis Robert Hoagland, Hugh Leslie Thomson, Edward Waldo Rice, Hazel Wood Severy, Lovell Langstroth, John Franklin Ellis, Hananiah Hugh Ross.

Of these student assistants Messrs. Greer, Crandall, Thomson held office during the first semester only, and Messrs. Rice, Ross and Miss Severy during the second semester only.

Professor Stewart Woodford Young was absent on sabbatical leave, lecture courses usually given by him being given by Professors Franklin and Stillman, and the laboratory work by Acting Instructor William E. Burke.

The courses of instruction in Chemistry during the year 1906-07 and the attendance upon them were as follows:

LECTURE COURSES

COURSE	INSTRUCTOR	HOURS PER WEEK	ATTENDANCE	
			FIRST SEMESTER	SECOND SEMESTER
1. General Inorganic.....	Swain.....	2	210	147
2. Principles of Chemistry	Stillman.....	3	20	15
3. Organic Chemistry...	Franklin.....	2	28	19
4. Industrial Chemistry..	Stillman.....	2	19	17
6. Qualitative Analysis...	Lenox.....	1	35	33
7. Advanced Organic....	Franklin.....	2	7	..
8. Physical Chemistry ...	Franklin.....	3	10	10
10. Theor. of Analytical Ch.	Stillman.....	1	..	14
11. Physiological Chem...	Swain.....	2	4	2
12. Seminary.....	Stillman, Franklin.	..	4	3

Lectures were also given without separate registration, as supplementary to laboratory courses, by Professor Lenox, one hour per week on Assaying, and by Instructor Sloan, one hour per week on Quantitative Analysis.

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Professor of Education.

ECONOMICS AND SOCIAL SCIENCE

The work of the department for the year 1906-07 was carried on by Associate Professors Allyn A. Young, Thorstein B. Veblen, and Assistant Professor Henry A. Millis. Assistant Professor Albert C. Whitaker, who spent the year in New York on leave of absence, gave a course of lectures at Columbia University.

The courses given in the department were as follows:

INSTRUCTOR	COURSE	HOURS CREDIT	ATTENDANCE	
			FIRST SEMESTER	SECOND SEMESTER
Young.....	1. Elements of Economics.....	3	167	112
Millis.....	2. Principles of Economics.....	2	26	21
Young.....	5. Railway Transportation.....	3	82	74
Millis.....	8. Public Finance.....	3	20	..
Millis.....	9. Amer. Methods of Taxation..	3	..	17
Millis.....	11. Labor Problems.....	3	53	..
Millis.....	11a. Methods of Economic Reform	3	..	32
Veblen.....	14. History of Political Economy.	3	10	10
Veblen.....	15. Socialism.....	3	14	..
Veblen.....	16. Econ. Factors in Civilization.	3	..	8
Young.....	17. Seminary in Statistics.....	2	8	9

Mention should also be made of the fact that Mr. Ira B. Cross, department assistant, gave much more than the amount of work that is usually claimed from an assistant.

Assistant Professor Whitaker was promoted to an Associate Professorship. A new appointment, taking effect August, 1907, was that of Dr. James M. Motley, Acting Professor of Economics in Wells College, as Assistant Professor. Mr. Motley received the degree of Doctor of Philosophy from Johns Hopkins University in 1906, and was for some time the acting secretary of the Baltimore Charity Organization Society. Dr. Motley will offer special courses in the field of charities and corrections and allied social problems. The addition of this work marks a step forward in the development of an important part of the work of the department—the offering of courses which will give direct technical training for certain vocations in which technical economic training is necessary or advantageous. The establishment of a special training course in statistical methods is another step in the same direction. There is an important and growing demand on the part of government bureaus and private corporations for men with a thorough equipment in economics and statistics.

Along with the development of the technical side of economic training, the department hopes to maintain adequate facilities for the larger body of students who seek in the study of economics some special preparation for the duties of citizenship, as well as to offer some opportunities for advanced study and research to those students who are interested in the study of economics for its own sake. To this latter end it is hoped that the new courses offered by Professor Veblen will especially contribute.

The library funds at the disposal of the department make it possible to provide fairly well for current needs, although they do not enable us to proceed very rapidly in the accumulation of a foundation library in economics. The library is especially deficient in sets of economic periodicals. The current periodical list of the department has been, however, largely increased, and one important set—the Commercial and Financial Chronicle—bought. The fact that the library possesses practically no equipment in the related lines of Anthropology and Ethnology imposes a severe handicap upon some of the work done in the department.

Among the various lines of research carried on by individual members of the department during the year, special mention may be made of the work on the co-operative economic history of the United States, under the auspices of the Carnegie Institution of Washington. Professor Millis has investigated selected topics in state finance (a trip through the Southern States in the summer of 1907 having been devoted to the collection of material for that purpose); Mr. Cross is investigating the history of the labor movement in California; and Professor Young is utilizing the Hopkins Railway Library in the study of some phases of American Railroad history.

ALLYN ABBOTT YOUNG,
Associate Professor of Economics.

HISTORY

The faculty of the department for the year 1906-07 consisted of Professors Max Farrand, Arley Barthlow Show, Ephraim Douglass Adams; Associate Professor Clyde Augustus Duniway; Assistant Professor Henry Lewin Cannon, and Instructor Payson Jackson Treat.

Mr. Treat was absent on leave during 1906-07, spending the year in the Far East in preparation for his work at Stanford. The field of his studies is that of the history of the countries of the Pacific Ocean. The subject is somewhat new in American universities, and Mr. H. C. Hoover, '95, has authorized the expenditure of \$1,000, and Mr. Dean P. Mitchell, '96, \$250, for the purchase of books in this field, which are to be presented to the University Library.

Throughout the year, 1906-07, Professor Show continued at the Pacific Theological Seminary the course of lectures on Ancient and Medieval History, which he had given the previous year.

The following is a list of the courses given in 1906-07, with hours of credit and attendance each semester:

INSTRUCTOR	COURSES	NO. HOURS PER WEEK	ATTENDANCE	
			FIRST SEMESTER	SECOND SEMESTER
Cannon.....	1. Training.....	1	49	33
Farrand.	2. Training.....	1	34	28
Show.....	3a & 3b. Middle Ages.....	3	101	98
Cannon.....	4a & 4b. English History.....	3	140	146
Adams.....	5a & 5b. Modern European Hist.	2	115	102
Duniway.....	6. American Colonial History...	3	55	56
Farrand.....	9. Westward Movement.....	3	..	124
Cannon.....	11b. England since 1754.....	2	26	..
Cannon.....	11c. Eng. Colonization & Empire.	2	..	34
Show.....	12. Empire and Papacy.....	2	10	..
Show.....	14. Italian Renaissance.....	1	..	12
Adams.....	15. Europe since 1789.....	2	21	17
Show.....	16. Teachers' Course.....	2	..	17
Duniway.....	17. Modern Constitutional Govts.	3	40	58
Duniway.....	20. Oral Debate.....	2	17	14
Department..	21. Historical Composition.....	1	2	2
Farrand.....	22. Bibliography and Criticism..	2	32	..
Show.....	27. Painting of Ital. Renaissance	1	5	4
Cannon.....	29. Magna Charta.....	2	..	8
Farrand.....	32. U. S. Constitution.....	2	21	14
Farrand.....	33. California.....	2	..	6
Adams.....	35. Eng. Colonization in Australia	3	1	..
Duniway.....	38. Federal Relations of California	2	12	15
			681	788

MAX FARRAND,
Professor of History.

LAW

During the session of 1906-07 the teaching force of the department consisted of Associate Professor Charles H. Huberich, Assistant Professor Arthur M. Cathcart, and Instructors Leon P. Lewis, Wesley N. Hohfeld, and Charles A. Huston. Mr. George Henry Boke, Associate Professor of Jurisprudence in the University of California, gave the course in Property I. In the absence of Professor Abbott, Professor Huberich was acting executive head.

Professor Abbott was absent on sabbatical leave during the year, and was engaged in giving lectures in the Law School of Columbia University. In the course of the year Professor Abbott tendered his resignation, and Mr. Lewis declined a reappointment. At the close of the year Mr. Frederick C. Woodward, Professor of Law at Northwestern University Law School, was elected to a professorship, and Mr. Joseph W. Bingham, Acting Assistant Professor at the College of Law of Cornell University, was elected to an acting assistant professorship. Mr. Huberich was promoted to a professorship, Mr. Cathcart to an associate professorship, and Mr. Hohfeld to an assistant professorship.

The registration of students during the first semester was 272, of whom 13 were graduate, 239 undergraduate, and 20 special students. The registration of the second semester was 260, of whom 14 were graduate, 226 undergraduate, and 20 special students.

The courses of instruction given, and the enrollment in each, were as follows:

INSTRUCTOR	SUBJECT	HOURS PER WEEK	NUMBER OF STUDENTS	
			FIRST SEMESTER	SECOND SEMESTER
Entire Faculty.	1. Elementary Law.....	3	169	148
Cathcart.....	2. Contracts	3	71	66
Huberich.....	3. Criminal Law	2	71	57
Lewis	4. Torts.....	2	92	80
Boke.	5. Property I.....	3	51	41
Hohfeld	6. Equity I.....	2	44	41
Huston	7. Agency.....	2	67	62
Lewis	8. Bills and Notes.....	4	..	9
Cathcart.....	9. Damages	2	25	..
Hohfeld.....	10. Equity II (Trusts).....	2	24	18
Hohfeld.....	11. Evidence	3	25	19
Huston	12. Insurance	3	..	20
Cathcart.....	14. Pleading.....	2	21	17
Cathcart.....	16. Public Service Cos.....	2	..	25
Huston	20. Admiralty	2	..	15
Huberich	21. Conflict of Laws	2	9	8
Huberich	22. Constitutional Law.....	3	6	6
Lewis	23. Corporations	4	20	..
Huston	24. Equity III.....	2	14	..

LABORATORY COURSES

COURSE	INSTRUCTOR	LAB. PERIODS PER WEEK	ATTENDANCE	
			FIRST SEMESTER	SECOND SEMESTER
a. General Inorganic ...	Swain, Mitchell, Price, Greer, Cran- dall, Thomson, Sev- ery, Langstroth, Ellis, Ross.....	2	104	84
b. Qualitative Analysis..	Lenox, Bateman....	3	35	33
c. Organic Preparations..	Franklin, Hoagland..	3	4	10
d. Quantitative Analysis	Stillman, Sloan	3-4	31	17
e. Mineral Analysis.....	Stillman, Lenox, Sloan.....	3-4	3	3
f. Physical Chemistry..	Burke.....	3-5	1	2
h. Physiological Chem..	Swain.....	3	3	1
j. Special Methods.....	Lenox.....	4	4	2
l. Sugar Analysis.....	Stillman.....	4	..	1
n. Assaying.....	Lenox, Rice.....	3	24	23
Research and Thesis.....	.....	...	3	1

In addition to the above registration, several students occupied desks each semester for the purpose of making up work incomplete from previous registration.

Advanced work suffered severely during the past year from the condition of the laboratory building consequent upon the earthquake damage and the exigencies of reconstruction. In the main building the second floor was entirely out of use, and only the large lecture room and the two large laboratories on the first floor were used. This condition was discouraging to special or research work. The undergraduate laboratory courses were conducted with inconvenience and much extra labor, but not to the detriment of the instruction in those branches. Advanced work was not, however, entirely suspended, though graduate or advanced students were few.

Instructor Alvin Joseph Cox was absent on leave while occupying a position in the Bureau of Science of the Philippine Islands, his place being taken by Instructor Sloan. Instructor Cox expects to be away during the ensuing year as well, and Instructor Sloan will continue to occupy the position thus vacated. At the beginning of the year Associate Professor Young was promoted to a full professorship, and Assistant Professor Swain to an associate professorship. Acting Instructor Burke has severed his connection with the department to accept a position in the Government Experiment Station in Hawaii.

Professor Franklin continued his studies on reaction in liquid ammonia. Professor Swain continued his experimental investigation in connection with the effects of smelter smoke on animal and vegetable life, in collaboration with Prof. W. D. Harkins of the University of Montana.

During the latter part of the year the department has occupied the new stone building, in the outer quadrangle, which has been fitted for this purpose.

The number of students has increased about thirty per cent over the previous year, owing to the greater variety of courses offered.

INSTRUCTOR	COURSE	HOURS WEEKLY	ATTENDANCE	
			FIRST SEMESTER	SECOND SEMESTER
Starks	1. Still Life.....	2 to 5	35	22
Lundborg.....	2. Cast.....	2 to 3	13	18
Lundborg.....	3. Head from Life.....	3	10	11
Lundborg.....	4. Painting.....	3	7	8
Clark.....	5. Landscape.....	2 to 5	20	34
Clark.....	6. Lectures on Art.....	2	91	..
Clark.....	8. Perspective.....	..	..	33
Starks.....	9. Scientific Drawing.....	2 to 5	..	6
Clark.....	10. Teachers' Course.....	2	..	7
Clark.....	11. Design.....	2	25	18
Lundborg.....	12. Illustration.....	2	19	15
			220	172

Courses 1, 2, 3, 4, 5 and 9 are laboratory courses. Courses 6, 8, 10, 11 and 12 were lecture courses with independent laboratory work done by students.

A number of graduates from this department obtained teaching positions during the year. Our facilities for preparing teachers of art for high school work would be improved by the addition of instruction in handicraft. This can be done at small expense by using the rooms of the old studio building. The department has need of lantern slides and facilities for their use in general lectures on art.

A. B. CLARK.

Associate Professor of Drawing.

MATHEMATICS

The personnel of the department faculty was as follows: Robert Edgar Allardice, Professor; Rufus Lot Green, Professor; Hans Frederik Blichfeldt, Associate Professor.

Professor Allardice and Associate Professor Blichfeldt contributed papers to both of the meetings of the San Francisco section of the American Mathematical Society.

In the course on the Theory of Linear Groups given the first semester by Associate Professor Blichfeldt, and in the course on Differential Geometry, given the second semester by Professor Allardice, the attendance was com-

prised almost entirely of instructors in the departments of Pure and Applied Mathematics.

The courses given were as follows:

INSTRUCTOR	COURSE	HOURS WEEK- LY	ATTENDANCE	
			FIRST SEMESTER	SECOND SEMESTER
Blichfeldt....	1. Trigonometry	2	47	..
Blichfeldt....	2. Solid Geometry	2	..	30
Green.....	3. Algebra.....	5	20	..
Green.....	4. Co-ordinate Geometry.....	5	..	22
Blichfeldt....	6. Non-Euclidean Geometry.....	2	..	6
Blichfeldt....	7. General Course.....	3	23	12
Allardice.....	9. Calculus.....	3	14	15
Green.....	10. Co-ordinate Geometry	2	7	7
Allardice.....	11. Advanced Calculus.....	2	4	..
Allardice.....	12. Theory of Functions.....	2	..	6
Blichfeldt....	15. Differential Equations.....	3	5	5
Green.....	18. Modern Co-ordinate Geom... ..	2	4	4
Allardice.....	21. Projective Geometry	2	11	7
Allardice.....	22. Theory of Curves.....	2	1	..

I believe that within the last few years every graduate of the department who has desired a position in a school or college has obtained such a position.

R. E. ALLARDICE,

Professor of Mathematics.

APPLIED MATHEMATICS

The teaching force for the year 1906-07 consisted of L. M. Hoskins, Professor; H. C. Moreno, Assistant Professor; W. A. Manning, Instructor (promoted during the year to the rank of Assistant Professor); W. O. Mendenhall, Instructor. The following student assistants were employed during the year: R. D. Brackett, C. F. Elwell, G. W. McDaniel, C. H. Paxton, E. G. Sheibley, Donald Steel, and H. R. Thomas.

Instructor Mendenhall resigned at the end of the year to accept a professorship in Earlham College, and Assistant Professor Moreno was granted leave of absence for the year 1907-08.

New appointments for the ensuing year were made as follows: S. D. Townley, Assistant Professor; J. D. Suter, Instructor; Edward Jordan, Instructor for the second semester; C. F. Elwell, Acting Instructor for the first semester.

The main part of the work of the department was devoted to the courses required of all students of engineering. The large number of these students has made it necessary to organize these courses into larger sections than would be desirable in the interest of the highest efficiency. The increased force of instructors for 1907-08 makes it possible to move in

the direction of remedying this difficulty, but there is every reason to expect a continued increase in the enrollment in these classes.

The accompanying table shows in detail the courses given during the year:

INSTRUCTOR	COURSE	UNITS	STUDENTS ENROLLED	
			FIRST SEMESTER	SECOND SEMESTER
Moreno, Manning, Mendenhall	1. Algebra	5	168	..
Manning	2. Solid Geometry.....	2	39	..
Moreno, Manning. Manning, Moreno. Mendenhall	3. Trigonometry.....	3	107	88
Moreno, Manning, Mendenhall	4. Co-ordinate Geometry...	5	..	130
Hoskins	5. Calculus.....	3	94	77
Moreno	6. Theoretical Mechanics..	5	97	79
Hoskins	7. Adjust. of Observations.	2	..	7
Hoskins	*3a. Hydraulics	3	..	75
Hoskins	*3b. Hydraulic Motors.....	3	51	..

L. M. HOSKINS,
Professor of Applied Mathematics.

PHYSICS

The faculty of the Physics Department for the year 1906-07 consisted of Professor Sanford, Associate Professor Stearns and Assistant Professors Rogers, Drew and Brown. There were also employed as laboratory assistants Miss Shirley Hyatt and Messrs. Wendell P. Roop, George A. Tarbell and Perley A. Ross, the latter not assisting in instruction. Professor Stearns was absent on sick leave during the entire year. Mr. Joseph Grant Brown was promoted from Instructor to Assistant Professor during the year.

On account of the partial destruction of the Physical Laboratory and the breakage of apparatus by the earthquake the work of the department was done under unfavorable conditions, and no investigation was carried on in the department. The library facilities of the department were increased during the year by the purchase of a complete set of the Fortschritte der Physik and two back series of the Philosophical Magazine. With the continuation of the present library appropriation it will be possible to complete the sets of journals most needed in a few years.

The attendance of major students in the department continues to be very small. Since all the lines of applied Physics have been represented by independent departments the number of students specializing in Physics

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Blichfeldt....	1. Trigonometry	2	47	..
Blichfeldt....	2. Solid Geometry	2	..	30
Green.....	3. Algebra.....	5	20	..
Green.....	4. Co-ordinate Geometry.....	5	..	22
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The attendance of major students in the department continues to be very small. Since all the lines of applied Physics have been represented by independent departments the number of students specializing in Physics

* Scheduled under Engineering.

has been very small in all the universities of the country, and the number now seems insufficient to supply the demand for teachers of Physics in the colleges and high schools of the country. The demand made upon the department for properly qualified teachers of Physics is now much greater than it can supply. One effect of this demand is to call most of the graduates to teaching positions as soon as they are able to secure the required certificates, and very few are taking graduate work in Physics in any of the universities of the country.

The courses given in the department during the year, with the attendance in each class, are given in the following table:

COURSE	INSTRUCTOR	LECTURE UNITS PER WEEK		LAB. UNITS PER WEEK		ATTEND- ANCE	
		FIRST SEMESTER	SECOND SEMESTER	FIRST SEMESTER	SECOND SEMESTER	FIRST SEMESTER	SECOND SEMESTER
1. Dynamics.....	Brown with lab. Assts. Hyatt and Roop.....	1	1	6	5	39	22
2. Elec. and Magnetism	Drew with lab. Asst. Roop.....	..	1	..	3	..	26
3. Heat	Sanford with lab. Asst. Hyatt.....	..	1	..	2	..	6
4. Sound	Brown.....	..	..	2	..	10	..
5. Elementary Optics..	Sanford .....	..	..	3	3	6	9
6a. EngineeringPhysics	Drew with lab. Asst. Hyatt.....	3	..	3	..	50	..
6b. Engineering Physics	Rogers with lab. Asst. Tarbell ..	..	3	..	2	..	30
7. Elec. and Magnetism	Rogers with lab. Asst. Tarbell...	2	..	4	..	38	..
8. Advanced Optics....	Sanford .....	..	..	..	2	..	5
9. Elec. Measurements.	Rogers with lab. Asst. Tarbell. ..	1	1	3	3	19	7
10. Analytic Mechanics	Drew.....	..	4	..	..	..	4
11. General Physics.....	Sanford.....	4	4	..	..	7	6
13. Teachers' Physics ..	Sanford.....	1	1	..	..	3	3
15. Vibratory Motion...	Rogers	3	..	..	..	4	..
16. Kinetic Theory.....	Rogers .....	..	2	..	..	..	1
Seminary.....	Sanford.....	..	2	..	..	..	1

I would respectfully recommend in this connection the establishment of a number of permanent laboratory assistantships with salaries sufficient to pay the necessary living expenses of the holders and a teaching requirement of three or four afternoons per week. Much of the laboratory work can be efficiently and economically done by laboratory assistants of this grade. If possible, graduate students who wish to do advanced work should be selected for these positions.

The work of the department would also be greatly facilitated by the appointment of a reliable laboratory janitor with some mechanical training who could be entrusted with the care of the apparatus and supplies.

FERNANDO SANFORD,
Professor of Physics.

CHEMISTRY

The staff in Chemistry for the year 1906-07 comprised Professors John Maxson Stillman, Lionel Redmond Lenox, Edward Curtis Franklin; Associate Professor Robert Eckels Swain; Instructors James Pearce Mitchell, William Henry Sloan; Acting Instructor William Edmund Burke, and student assistants William G. Bateman, Jacob M. Price, Dane Manson Greer, Berton Woodford Crandall, Dennis Robert Hoagland, Hugh Leslie Thomson, Edward Waldo Rice, Hazel Wood Severy, Lovell Langstroth, John Franklin Ellis, Hananiah Hugh Ross.

Of these student assistants Messrs. Greer, Crandall, Thomson held office during the first semester only, and Messrs. Rice, Ross and Miss Severy during the second semester only.

Professor Stewart Woodford Young was absent on sabbatical leave, lecture courses usually given by him being given by Professors Franklin and Stillman, and the laboratory work by Acting Instructor William E. Burke.

The courses of instruction in Chemistry during the year 1906-07 and the attendance upon them were as follows:

LECTURE COURSES

COURSE	INSTRUCTOR	HOURS PER WEEK	ATTENDANCE	
			FIRST SEMESTER	SECOND SEMESTER
1. General Inorganic.	Swain.	2	210	147
2. Principles of Chemistry	Stillman.	3	20	15
3. Organic Chemistry. . .	Franklin.	2	28	19
4. Industrial Chemistry. .	Stillman.	2	19	17
6. Qualitative Analysis. . .	Lenox.	1	35	33
7. Advanced Organic. . . .	Franklin.	2	7	..
8. Physical Chemistry. . .	Franklin.	3	10	10
10. Theor. of Analytical Ch.	Stillman.	1	..	14
11. Physiological Chem. . .	Swain.	2	4	2
12. Seminary.	Stillman, Franklin.	..	4	3

Lectures were also given without separate registration, as supplementary to laboratory courses, by Professor Lenox, one hour per week on Assaying, and by Instructor Sloan, one hour per week on Quantitative Analysis.

LABORATORY COURSES

COURSE	INSTRUCTOR	LAB. PERIODS PER WEEK	ATTENDANCE	
			FIRST SEMESTER	SECOND SEMESTER
a. General Inorganic ...	Swain, Mitchell, Price, Greer, Cran- dall, Thomson, Sev- ery, Langstroth, Ellis, Ross.....	2	104	84
b. Qualitative Analysis..	Lenox, Bateman....	3	35	33
c. Organic Preparations..	Franklin, Hoagland..	3	4	10
d. Quantitative Analysis	Stillman, Sloan	3-4	31	17
e. Mineral Analysis.....	Stillman, Lenox, Sloan.....	3-4	3	3
f. Physical Chemistry..	Burke.....	3-5	1	2
h. Physiological Chem...	Swain.....	3	3	1
j. Special Methods.....	Lenox.....	4	4	2
l. Sugar Analysis.....	Stillman.....	4	..	1
n. Assaying.....	Lenox, Rice.....	3	24	23
Research and Thesis....	.....	...	3	1

In addition to the above registration, several students occupied desks each semester for the purpose of making up work incomplete from previous registration.

Advanced work suffered severely during the past year from the condition of the laboratory building consequent upon the earthquake damage and the exigencies of reconstruction. In the main building the second floor was entirely out of use, and only the large lecture room and the two large laboratories on the first floor were used. This condition was discouraging to special or research work. The undergraduate laboratory courses were conducted with inconvenience and much extra labor, but not to the detriment of the instruction in those branches. Advanced work was not, however, entirely suspended, though graduate or advanced students were few.

Instructor Alvin Joseph Cox was absent on leave while occupying a position in the Bureau of Science of the Philippine Islands, his place being taken by Instructor Sloan. Instructor Cox expects to be away during the ensuing year as well, and Instructor Sloan will continue to occupy the position thus vacated. At the beginning of the year Associate Professor Young was promoted to a full professorship, and Assistant Professor Swain to an associate professorship. Acting Instructor Burke has severed his connection with the department to accept a position in the Government Experiment Station in Hawaii.

Professor Franklin continued his studies on reaction in liquid ammonia. Professor Swain continued his experimental investigation in connection with the effects of smelter smoke on animal and vegetable life, in collaboration with Prof. W. D. Harkins of the University of Montana.

Instructor J. Pearce Mitchell began, under supervision of Professor Stillman, an examination of the surface waters of the Peninsula, with reference to the establishment of normals of constituents.

Acting Instructor Burke completed the investigation upon certain supercooling phenomena undertaken under the direction and with the collaboration of Professor Young.

Mr. Dane M. Greer completed, under the direction of Professor Stillman, a preliminary chemical survey of surface and ground waters of the region about the University, in part fulfillment of the requirements for the degree of Engineer in Chemical Engineering.

Mr. F. F. Fitzgerald (A. M. '07) completed during the past summer, under Professor Franklin's direction, an investigation upon certain ammonia compounds of tin—interrupted by the earthquake of 1906.

Mr. W. D. Harkins, Professor of Chemistry at the University of Montana (A. B. Stanford, '00), completed during the year, in absentia, the investigations upon smelter smoke and upon analytical methods of arsenic determination which he has had in progress partly in this laboratory and partly at Montana, and which constitute his thesis for the degree of Ph. D. at this University.

During the year several graduates of the department have received appointments in various branches of public service.

Mr. H. D. Gibbs, a graduate student and later chemist of the San Francisco Board of Health, has accepted a position in the Bureau of Science of the Philippine Islands to take charge of the pure food laboratory in Manila.

Acting Instructor W. E. Burke (A. B. '07) has accepted a position in the Agricultural Experiment Station in Hawaii.

Mr. J. E. Dunnipace (A. M. '06) is Assistant in Chemistry at the University of Illinois.

Mr. F. F. Fitzgerald (A. B. '06, A. M. '07) is Instructor of Chemistry at the Cooper Medical College. Other recent graduates have taken positions in various technical and industrial laboratories. There has been greater demand for graduates to take places in such lines than we have been able to supply.

The facilities of the laboratory have been improved during the past year by the accession to the library of a complete set of the *Annales de Chemie et de Physique*, purchased with the year's allotment to the department of funds for library purposes; by the system of ventilation introduced by the Commission of Engineers in connection with the rehabilitation of the building; and by the fitting up of the additional storage room for apparatus and chemicals in the basement of the main building.

The more important needs of the laboratory for the immediate future are: further additions to the sets of serials in the main lines of chemical instruction and research, and for other manuals and monographs on special subjects; apparatus for the liquifaction of air, and for the study of reactions at low temperatures; an improved water supply in the building—

both as to pressure and as to settling or filtration before entering the service pipes; it is also greatly to be desired that eventually a better quality of fuel gas can be obtained than the mixture of gasoline vapor and air now in use, which while it is as satisfactory as such a gas can be made, is short of the desirable heating power of a first-class laboratory gas supply.

In the matter of instruction, the most urgent need is the addition of at least two instructorships to assist in the class and laboratory work in Analytical and Elementary Chemistry. Some of the work now necessarily done by inexperienced student assistants would gain by being in the charge of more experienced and mature scholars who might be expected to hold their positions for more than a year.

J. M. STILLMAN,

Professor of Chemistry.

GENERAL BOTANY

The personnel of the department was as follows: Professor Douglas Houghton Campbell, Associate Professor George James Peirce, Assistant Professor Anstruther Abercrombie Lawson, Acting Instructor Harry Baker Humphrey, Assistant Richard Morris Holman.

INSTRUCTOR	COURSE	HOURS WEEKLY	ATTENDANCE	
			FIRST SEMESTER	SECOND SEMESTER
Campbell, Peirce.....	1. Elementary Botany.	3	52	41
Campbell.....	2. Algae	5	10	..
Campbell.....	3. Archegoniatae.	5	..	11
Peirce.....	4. Physiology.....	3	5	..
Peirce.....	5. Elem. Bacteriology.	3	..	1
Peirce.....	6. Gen.Phys. of Plants	1	45	..
Campbell, Humphrey	7. Evol. of Plant Forms	1	..	46
Peirce.....	8. Physiology.....	3	..	4
Campbell, Peirce	12. Advanced Work....	Indef.	2	1

With the exception of the one-hour lecture courses above indicated, all courses in this department are laboratory courses, with not more than one lecture a week.

Assistant Professor Lawson was away on leave of absence for the year. At the famous botanical garden at Kew, and in the laboratories of Professors Strasburger in Bonn and Gregoire in Louvain, he continued his cytological studies. In Kew and elsewhere he had the opportunity to devote himself for some time to fossil plants, particularly the Gymnosperms, with which he is already familiar so far as more recent forms are concerned; and this branch of botany, which has had few American students of late years, seems to offer to the student of plant-evolution and classification more certain results than any other line.

Dr. Lawson's place was partly filled by Mr. H. B. Humphrey, who was in charge of the laboratory work of Botany 1. At the end of the year Mr. Humphrey received the Doctor's degree, his thesis being a report of his work, morphological and physiological, on the growth and development of certain liverworts. At the close of the year, owing to Dr. Lawson's return, Dr. Humphrey was transferred to the other department of botany.

At the end of the spring semester, Dr. Peirce was employed, in conjunction with Dr. Swain, Associate Professor in the Department of Chemistry, to investigate the effects produced on their surroundings by the principal smelting plants of this country in which sulphurous ores are treated. This investigation extended from the mountains of southeastern Tennessee to the Puget Sound region and northern California. Observations in the field, and the laboratory study of photographs, dried specimens, and sections of otherwise preserved material, show that the operation of smelters in this country has always been followed by damage, often very extensive, to the native vegetation as well as to plantations, whenever a sulphurous ore has been treated. That this result is unnecessary, is proved by the experience of Germany, where government restrictions have reduced the inevitable damage to a minimum. Dr. Peirce proposes to continue, by experiments in the laboratory, this work begun in the field, for the purpose of showing that the effects observed out of doors could have been produced only by the bye-products of the smelters; but the difficulty of carrying on such an investigation in a laboratory not provided with an experiment-house is obvious.

Professor Campbell has been engaged, during the past year, in studying a portion of the valuable collections made by him in Ceylon and Java during his absence in 1905-06. Important results have been obtained, some of which have been published. Other papers are now in press and will appear shortly. During the year Professor Campbell also prepared a new edition of his "University Text-book of Botany," published by the Macmillan Company.

Associate Professor Peirce has spent much time in experimenting with and in perfecting the apparatus referred to below, and in studying the one-celled plants living in the concentrated brines of the salt-works on the shores of San Francisco Bay.

The work of Assistant Professor Lawson and of Acting Instructor Humphrey has already been described.

The equipment of the department has been increased this year in the usual way and by the addition of one piece of apparatus which deserves special mention, both for itself and for the way in which it came into existence. One of the officers of this department, in conversation with Professor Durand, of the Department of Mechanical Engineering, expressed the wish that a piece of apparatus which he had in mind, but which is unlike any in any other laboratory, might be built; for he felt that by its aid much light might be thrown on problems connected with the question of

heredity. Professor Durand was at once interested, and proposed that the Mechanician's Shop construct such an instrument. This was undertaken. The machine is now in successful operation in one of our laboratories. It is a pleasure to record, and to report to you, our grateful appreciation of the generous co-operation which Professor Durand has extended to this department.

The Botanical Society continued its practice, referred to in a previous report of this department, of making an annual gift to the department of some article of permanent value. This was this year a framed artist's proof etching by Flameng of Collier's portrait of Huxley.

There seems to be a growing demand for trained botanists in practical lines. For years it seemed that the only occupation open to botanists was teaching, and there never was a large demand for teachers of botany in the schools. This fact, and the character of the earlier botanical instruction in America, have probably been the cause of the preponderance of women students in botany. Men investigators and men experts in botany are now in demand, and we have no men for the positions of which we know.

The chief need of this department, as already referred to, is an experiment house. We have been forced, for so many years, to grow plants on window-sills, that we have nearly exhausted the possibilities of this form of gardening. Certain kinds of work cannot be done at all unless we have a laboratory under glass, where temperature, humidity, and illumination can not only be controlled, but also where they can be made like nature. Such work as done by one of us this last summer, on the effects of smelter-fumes on vegetation, must be supplemented by experiment to prove that no other cause of damage exists than the poisonous emanations of such works; and such experiments can hardly be performed at a reasonable expenditure of time, labor and money, unless they are carried on in, and in connection with, an experiment-house. The intelligent interest of our Trustees in the protection of their own property and that of the University may be relied upon to appreciate the force of this.

DOUGLAS HOUGHTON CAMPBELL,
Professor of Botany.

SYSTEMATIC BOTANY

The department faculty for 1906-1907 consisted of William Russell Dudley, professor, and LeRoy Abrams, assistant professor. Professor Dudley, who was absent on sabbatical leave, spent the year traveling and making botanical observations through southern Europe and Egypt. His courses were given by Professor Abrams, who was assisted in the laboratory by Mr. James Ira Wilson McMurphy.

Dr. Harry Baker Humphrey, who was appointed acting instructor for the year 1907-08, has been granted a leave of absence until January, 1908. He will spend the vacation with Luther Burbank at Santa Rosa, where he will assist Mr. Burbank in his work.

Mr. James Ira Wilson McMurphy has been reappointed laboratory assistant, and Mrs. Olive Agatha Humphrey, Herbarium assistant, for the year 1907-08.

Professor Dudley's leave has been extended until January, 1908.

Professor Abrams has continued his studies on the flora of Southern California. He has also undertaken to monograph the *Frankeniaceae* of North America for the *North American Flora*. Professor Abrams was appointed botanical assistant to Luther Burbank and spent the summer vacation at Santa Rosa assisting Mr. Burbank in the preparation of his publications.

The botanical survey of the Santa Cruz mountain peninsula was continued during the year, considerable collections being made, especially in the higher fungi.

The following courses were offered during the year 1906-1907:

COURSE	INSTRUCTOR	HOURS OF WORK		ATTENDANCE	
		LECTURE	LAB.	FIRST SEMESTER	SECOND SEMESTER
2. Fungi.....	{Abrams.... McMurphy.	1	8	10	..
3. Spermaphyta.....	{Abrams.... McMurphy.	1	8	..	20
5. Geographical Dist. and Forest Botany.	{Abrams.... McMurphy.	1	6	..	17
6. Compositae.....	Abrams ....	..	6	4	..
7. Advanced work.....	Abrams.....	..	3	6	10

The Herbarium has been materially increased during the year by various collections, the most important of which was one of 1300 specimens collected by Professor Abrams in Southern California. The rearrangement of the Herbarium, according to the Engler and Prantl classification, was commenced and is now being carried toward completion. The botanical collections are becoming of considerable scientific value, and have been visited for the purpose of study by several botanists of other institutions during the year. It is the aim of the department to build up a collection that will be invaluable in the study of the geographical distribution of the plants in western North America.

LEROY ABRAMS,
Assistant Professor of Botany.

PHYSIOLOGY AND HISTOLOGY

The teaching force for the year 1906-07 consisted of Oliver P. Jenkins, professor; Frank Mace McFarland, associate professor; and James Rollin Slonaker and Clara S. Stoltenberg, assistant professors. Hubert Oliver Jenkins and Dexter Newell Richards were employed as laboratory assistants.

The following courses were given during the academic year, the numbers used to designate the courses being those given in the Register for 1906-07, to which reference may be made for explanation of the character of the courses:

INSTRUCTOR	COURSE	HOURS CREDIT	HOURS PER WEEK		ATTENDANCE	
			LEC- TURE	LABOR- ATORY	FIRST SEM.	SECOND SEM.
Jenkins, Slonaker, H. O.	1. Gen. Anatomy and Physiology.....	3	1-2	5	56	45
Jenkins						
Slonaker, Richards ...	2. Physiology of Muscle, Blood, Circulation.	2	1	5	20	..
Slonaker, Richards ...	3. Physiology of Digestion, Respiration, Metabolism, etc...	3	1	5	..	17
Stoltenberg ..	4. Structure of Nervous System	3	1	5	13	..
Stoltenberg ..	4b. Structure of Nervous System (advanced)	2	..	5	..	2
Stoltenberg ..	5. Histology of the Nervous System	3	1	5	13	..
Jenkins.....	6. Physiology of Nervous System.....	3	1	5	..	12
Jenkins.....	8. Advanced Physiology	3	..	9	1	1
McFarland...	9. Histology.....	3	1-2	6	16	13
McFarland...	9a. Microscopic Anatomy	2-3	1	6	..	6
McFarland...	10. Histogenesis.....	3	1	6	7	..
McFarland...	12. Advanced Histology	3	..	9	..	1
Stoltenberg ..	13. Anatomy.....	3	..	15	..	8
Department..	15. Journal Club.....	1	..	..	15	16
Department..	16. Seminary.....	..	..	..	..	..
McFarland...	17. Research in Histology	4-7	..	12-21	2	3
Jenkins.....	17. Research in Physiol..	..	..	..	1	1

Dr. McFarland has continued his work on the Opisthobranchiate Mollusca of the Pacific Coast and Brazil.

Dr. Slonaker has extended his researches on the voluntary activity of the White Rat from birth to death. He has also continued his investigation of the influences of food on the voluntary activity, rate of growth and longevity of this rat.

Assistant Professor Stoltenberg has been engaged on the determination of the nerve tracts of the brain of rodents.

Dr. Jenkins has been engaged on an investigation of the physiology of the nerve and muscle of molluscs.

Miss Isabel McCracken, Instructor in Entomology, has completed work on "The egg-laying apparatus in the silkworm *Bombyx mori* as a reflex apparatus."

Investigations by students in the department have been in progress as follows: L. S. Kroeck on the spermatogenesis in the Sperminophile; Mrs.

F. M. McFarland, on the anatomy and histology of Phyllophysis; Miss Louise Pearce on the minute structure of the plexus of Auerbach and of Meisner in mammals; R. R. Long on the effect of exercise on blood pressure.

O. P. JENKINS,

Professor of Physiology.

HYGIENE

The personnel of the department for 1906-07 consisted of Associate Professor Snow, Instructor Long, and Assistants Bolton and Townsend. Instructor Chappel has been absent during the year, pursuing studies in the Medical Department of Cornell University.

The courses offered were as follows:

INSTRUCTOR	COURSE	HOURS WEEKLY	UNITS OF CREDIT	ATTENDANCE	
				FIRST SEM.	SECOND SEM.
Long and as- sistants....	1a. Elementary Hygiene (Gym. and Lab. work)..	3*	1	107	89
Long and as- sistants....	b, c, d. Gymnasium courses.	3 each	1 each	115	74
Matzke, Bol- ton, Town- send	1e. Elem. Hygiene (Gym., Lab. and Lect.).....	3	1	50	32
Bolton and Townsend..	f, g, h.	3*	1	14	20
Snow	2a. Infectious Diseases, Lec.	2	2	45	..
Snow	2a. Infectious Diseases, Lab.	3	1	18	..
Snow	2b. Public Health, Lec.	2	2	..	102
Show	2b. Public Health, Lab. 5 sections.	3	1	..	52
Snow	6a. Hygiene Lab. Tech.	9	3	8	6
Snow	6b. Sanitary Survey Lab....	9	3	6	6
Snow	Special Laboratory work....	9-15	3-5	4	2

The work of the department may be summarized by semester in this way:

	First Semester			Second Semester		
Lectures	202	students	enrolled	215	students	enrolled
Laboratory work	36	"	"	66	"	"
Gymnasium "	286	"	"	215	"	"

During the year two important sanitary problems were investigated experimentally for the California State Board of Health: (1) The Relation of the Santa Clara Valley Sewage to the Oyster Beds of San Francisco Bay; (2) An Extensive Sanitary Survey and Health Census of the San Francisco Peninsula. The details of this work were carried out under the

* Two hours of gymnasium instruction and one hour of lecture and demonstration each week.

direction of Professor Snow, by senior students in the department of Physiology and Chemistry, who were enrolled in Hygiene courses. The supply and field expense for this work was paid by the state. The reports when published will prove useful additions to the sanitary data on California.

The department has been provided with lockers and shelving during the year, and considerable apparatus for hygiene and sanitary experimental work has been purchased, but the increase in the number of students enrolled in laboratory courses has made the equipment entirely inadequate.

The department needs twenty-five laboratory desks equipped for bacteriological and public health technique. The chief expense for this purpose in addition to the desks would be the oil immersion microscopes. The department has four; at least twelve more are needed.

Associate Professor Storey's resignation last year has handicapped the department work materially, and his successor is badly needed.

A laboratory assistant is much needed in the course in Infectious Diseases and Public Health.

The department has written letters of recommendation for a number of students who have been appointed to positions as instructors in physical training in high schools. Three schools—Mills College, Stockton High School and Los Angeles High School—have begun the development of courses in Hygiene, planned to meet the requirements of Stanford University for entrance in this subject.

Professor Snow left the University in May to make a four months' study of public health, education and administration, in the United States.

The department has made progress in establishing its museum of Hygiene, materials for which have been accumulating for three years.

WILLIAM F. SNOW,

Associate Professor of Hygiene.

ZOOLOGY

The faculty of the department consisted of Professor Charles Henry Gilbert, Associate Professors George Clinton Price and Harold Heath, Assistant Professor John Otterbein Snyder, Curator Edwin Chapin Starks, and Instructor Walter Kenrick Fisher.

For part of the fall term Professor Gilbert and Assistant Professor Snyder were with the United States Fish Commission Steamer *Albatross*, engaged upon a study of the fishes of Japan.

During the year Professor Gilbert has been engaged in the preparation of a monograph of the Myctophid fishes, and in a study of the deep-sea fishes of the west coast of the United States.

Assistant Professor Snyder has been engaged principally in the preparation of a paper on the fishes of the Lu Chu Islands, based on material obtained during a visit to the group in the summer and fall of 1906.

Associate Professor Heath has continued his studies on the anatomy and classification of various molluscs of the North Pacific, working especially on the development of the Chitons, and a monographic report on the Solonogastres.

Mr. Starks has continued his investigations on the fishes of the Pacific Coast, and on the relationships of fishes as exhibited by osteological characters. Besides this he has prepared several papers in co-authorship with Dr. Jordan on fishes of the Pacific.

Dr. Fisher has concluded his report on the starfishes of Hawaii, and has in preparation a monographic report of the Holothurians of the same region.

The following courses of instruction were given:

INSTRUCTOR	COURSE	HOURS PER WEEK		ATTENDANCE	
		LECT.	LAB.	FIRST SEMESTER	SECOND SEMESTER
Price	1. Elementary Zoology...	1	6	32	26
Heath	2. Invertebrate Anatomy.	1	6	8	8
Heath	3. Invertebrate Embryol.	1	5	8	3
Heath	4. Invertebrates (Adv.)...	..	6 to 9	1	3
Fisher	4a. Invertebrates (Class.)...	..	6	5	4
Snyder.....	5. Vertebrates (Class.)...	1	6	10	11
Snyder.....	6. Comp. Anat. of Verte...	..	9	11	8
Price.....	7, 8. Vertebrate Embryol.	1	5	28	2
Price.....	9. Foetal Anatomy.....	1	5	..	10
Starks	10. Ichthyology.....	..	6 to 9	10	10
Gilbert.....	11. Ichthyology (Adv.)...	..	6	..	1
Gilbert.....	12. Journal Club.....	..	..	10	7
Snyder.....	13. Vertebrates (Adv.)....	..	6	..	2

In the absence of Professors Gilbert and Snyder during the first semester, course 5 was given by Mr. Fisher, course 6 by Mr. Starks, and course 12 by Associate Professor Price.

The following research work has been completed by graduate students: The anatomy of a new species of Nectonemertes (published), by Miss Mary R. Cravens and Professor Heath; the morphology and relationships of heteropods from Hawaii (in press), by M. H. Spaulding; the anatomy of Haliotidae (published), by C. F. Palmer.

The regular session of the Marine Biological Laboratory at Pacific Grove during the summer of 1907 was under the direction of Associate Professor Price. Courses were given by Associate Professor Price, assisted by Assistant Professor Snyder, by Assistant Professor Clara S. Stoltenberg of the department of Physiology, by Dr. H. B. Humphrey of the department of Botany, and by Mr. H. O. Jenkins.

GEORGE CLINTON PRICE,
Assistant Professor of Zoology.

ENTOMOLOGY AND BIONOMICS

The faculty of the department in 1906-07 was composed of David Starr Jordan, lecturer; Vernon Lyman Kellogg, professor; Mary Isabel McCracken, instructor; Rennie Wilbur Doane, instructor and curator; B. A. Wiltz and Rose Patterson, assistants.

The number of major students was twelve, of whom three were graduate students. The courses given were as follows:

INSTRUCTOR	COURSE	UNITS	ATTENDANCE	
			FIRST SEMESTER	SECOND SEMESTER
McCracken.....	1. Elementary Entom. (lab.)	3	20	8
McCracken.....	2. Morphology of Insects (lab.)	3	5	9
Doane	3. Economic Entom. (lab.) ..	2 or 3	5	7
Kellogg	4. General Entomology (lect.)	2	..	45
Kellogg	5. Advanced work (lab.)	2 to 5	5	7
Jordan, Kellogg	6. Organic Evolution (lect.) ..	2	156	134
Kellogg	7. Heredity & Variation (lab.)	3	3	3
Kellogg	Special Research, Grad. (lab.)	..	2	2

Instructor Doane spent the time from February 20, 1907, to May 1 in San Diego in charge of an investigation in silk-worm culture. He spent also about two weeks at Carmel, California, while engaged in a special study of the insect enemies of the Monterey Pine.

The researches carried on during the year were: By Professor Kellogg: an investigation of heredity and variation in the silk-worm moth, *Bombyx mori* (seventh year); parthenogenesis in the silk-worm moth (second year, concluded and results now in press); determinate variation in *Diabrotica* (sixth year). By Instructor McCracken: the egg-laying apparatus of the silk-worm moth as a reflex apparatus (results published); behavior in heredity of a sport in *Melasoma scupta* (results published); mutations in the California poppy (first year); heredity of sporting melanism and bivoltinism in the silk-worm (third year); inheritance of fluctuating variation in *Melasoma scupta* (third year). By Instructor Doane: new North American Tipulidae. By student Fullaway, life-history of *Psychoda schizura* (results in press); by student Patterson, the California Cynipidae; by student Williamson, insects of the Galapagos Islands (collected by Williamson as a member of the California Academy of Sciences expedition); by students Ramsey and Wiltz, variation in *Vespa*.

Graduate students received appointments as follows: Dudley Moulton, M. A., to be in charge of special sub-station of U. S. Bureau of Entomology for investigation of insect pests of deciduous fruits of California; C. T. Paine, B. A., to be instructor in entomology in Special Agricultural School in British Columbia, and, later, to be assistant in special sub-station of the U. S. Bureau of Entomology for investigation of insect pests of decidu-

ous fruits of California; G. D. Shafer, M. A., reappointed fellow in entomology in Cornell University.

For the further development of the work of the department along the lines of the study of life-histories of insects, upon which study all sound work in economic entomology depends, and for the experimental studies in heredity, which are being carried on by the department, a vivarium or insectory is becoming a necessity. For the maintenance of the experimental work in silk-worm culture a small plantation of mulberry trees is necessary.

The principal additions to the equipment of the department made during the past year are apparatus for photo-micrographic work and books and papers on silk-worm culture.

VERNON L. KELLOGG,
Professor of Entomology.

GEOLOGY

The department faculty consisted of Professors John Caspar Branner and James Perrin Smith; Associate Professor John Flesher Newsom; Assistant Professors Dorsey Alfred Lyon and Austin Flint Rogers; Instructor Louis John Mayreis; and Assistants Roy Sheldon Kellogg, William Otterbein Clark, Harry R. Johnson, and Frank Warren Turner.

Courses given in the Department of Geology and Mining during the year 1906-07:

INSTRUCTOR	COURSE	HOURS WEEK- LY	ATTENDANCE	
			FIRST SEMESTER	SECOND SEMESTER
Branner.....	1. Elementary Geology....	3	207	..
Branner, Smith ..	1a. Physiography	1	..	37
Branner, Newsom.	2. Economic Geology.....	2	..	56
Clark.....	3. Topographic Geology ...	4	..	..
Rogers, Clark, Johnson.....	4. Field Geology	5	..	18
Rogers, Turner ..	5. Mineralogy	3	40	43
Rogers	6. Petrography	3	19	19
Smith.....	7. Systematic Paleontology.	4	5	11
Smith.....	8. Paleontology (investiga.)	2-5	4	5
Newsom, Lyon, Mayreis.....	10a. Mining.....	4	9	..
Newsom, Mayreis.	10b. Mining.....	3	3	4
Lyon	11a. General Metallurgy....	4	..	26
Lyon, Kellogg.....	11b. Metallurgy (lab.).....	2	..	18
Lyon, Kellogg.....	11c. Metallurgy of Construc- tive Materials.....	3	60	..
Lyon, Mayreis....	11e. Metallurgy (Special)...	3-5	12	5
Rogers	12a. Crystal Morphology....	2	..	2
Smith.....	13. Advanced Paleontology.	2	3	4
Branner.....	14. Special courses in Geology	2-5	3	3

At the end of the year 1907 Mr. L. J. Mayreis, instructor in metallurgy, resigned, and his place has been filled by the appointment of Mr. Luther William Bahney.

Geologic exploration : Mr. Branner went in April, 1907, to Brazil, accompanied by Mr. Roderic Crandall (A. M. 1907), where he will spend a year in geologic investigations.

Mr. Smith spent the summer in stratigraphic and paleontologic investigations of the Trias of Nevada and California for the U. S. Geological Survey; in the latter field he was assisted by Messrs. R. B. Moran and H. O. Jenkins.

Mr. Newsom spent the summer in studying the economic geology of British Columbia, assisted by Mr. L. J. Mayreis.

Mr. Rogers conducted the field party engaged in mapping the Tesla Quadrangle, assisted by Messrs. H. R. Johnson and W. O. Clark.

Mr. W. H. Ochsner returned in November, 1906, from a two years' exploration of the Galapagos Islands under the direction of the California Academy of Sciences, where he studied the conchology and paleontology of the group.

Scientific work : Mr. Branner has completed his work of investigation of the earthquake and has prepared his final report upon it for the State Earthquake Commission.

Mr. Smith has published a report on the marine Triassic stratigraphy of America, and has completed a monograph for the U. S. Geological Survey upon the marine fossils of the middle Trias of America.

Mr. Newsom has continued his investigations on the economic geology and physiography of Alaska and British Columbia.

Mr. Lyon spent the summer of 1907 in studying the electro-metallurgy of iron at Herault, California.

Mr. Rogers, assisted by Messrs. Clark and Johnson, has been engaged in preparing a report on the geology of the Tesla Quadrangle. He has also published a paper on the minerals of Joplin, Missouri; one on aegyrine and riebeckite in Oklahoma, and one on methods of making crystal drawings.

Mr. R. B. Moran has prepared a report on the stratigraphy of the oil fields of San Luis Obispo and Santa Barbara counties.

Mr. W. H. Ochsner has been engaged in preparing a monograph on the conchology and paleontology of the Galapagos Islands.

Mr. F. Grinnell has prepared a paper on the fossil insects of California.

Mr. R. Crandall has completed and published a paper on the geology of the San Francisco Peninsula, and another on the Cretaceous stratigraphy of the region about the Bay of San Francisco.

Mr. C. W. Henderson has completed a work upon the bibliography of the geology of Oregon and on the stratigraphy of that state.

Mr. S. Shedd has completed a monograph on the clays of Washington, and a paper on the stratigraphy of Washington.

Mr. Mayreis has prepared a paper on the metallurgy of silver.

Mr. G. H. Sampson has investigated the behavior of metals at high temperatures.

Positions for students : Mr. W. O. Clark, A. B. 1906, has been appointed professor of geology in the State Normal College, Milwaukee, Wisconsin; Messrs. Robert V. Anderson, G. A. Waring, W. L. Walker and H. R. Johnson have been appointed assistant geologists on the U. S. Geological Survey; and Mr. C. W. Henderson has been appointed statistician in the economic division of that organization.

Messrs. R. B. Moran, W. H. Ochsner, and Dale Slusher have been employed by the Southern Pacific Railway to make an economic geological survey of the oil fields of California.

Collections : The field work of Messrs. Smith and Rogers and their assistants has added large collections of fossils, rocks, and minerals to those already in the department collections, and the amount of material is now far greater than the space available for it. These collections, along with the private library of Mr. Branner, are still in the temporary quarters in the Inner Quadrangle, awaiting the completion of the new building for geology. It is hoped that they may be removed to their permanent quarters during 1908.

JAMES PERRIN SMITH,
Professor of Paleontology.

CIVIL ENGINEERING

During the year 1906-07 the teaching force of the department consisted of: Professors Charles D. Marx, Charles B. Wing, and Leander M. Hoskins; Instructors Hubert H. Hall and Lester L. Carter; and a number of student assistants. Associate Professor Fish is still absent on leave.

Since July 1, 1906, Messrs. Marx and Wing of the department have given all their spare time to the work of the Engineering Commission, created by resolution of the Board of Trustees. This has involved much additional work for all the members of the department, and in order not to overburden Professor Wing, Course 9 in Railroad Bridges was not given during the second semester. A special two-hour course, for which no credit was allowed, was given by Professor Marx during the second semester. The continued absence of Professor Fish has prevented the department from giving the courses in railroad location and construction. It is to be hoped that by the fall of 1908 Professor Fish will have returned to us, so that this much needed work can be given by a thoroughly competent man.

The needs of the department in the matter of laboratory buildings and equipment were submitted at an earlier date. In accordance with instructions received from the Board of Trustees, the Commission of Engineers is now working out a comprehensive plan. When this has been submitted and adopted, recommendations for increase in the teaching force will be made.

The courses given and the attendance are shown in the accompanying tabulated statement:

INSTRUCTOR	COURSE	HOURS WEEKLY	ATTENDANCE	
			FIRST SEMESTER	SECOND SEMESTER
Mayreis and assistants..	1a. Linear Drawing.....	1	134	..
Mayreis and assistants..	1b. Descriptive Geometry...	1-4	181	88
Wing and assistants....	2a. Mechanics of Materials	5	78	..
Hoskins.....	3a. Hydraulics	3	..	75
Hoskins.....	3b. Hydraulic Motors	3	51	..
Hall and assistants....	4a. Elementary Surveying..	5	36	41
Hall and assistants....	4b. Elementary Surveying...	2	6	..
Hall and assistants....	6a. Railroad Surveying.....	5	..	34
Wing and assistants....	8a. Elements of Design.....	3	26	..
Wing and assistants....	8b. Elements of Design.....	5	..	22
Wing and assistants....	8c. Elements of Design.....	3	..	6
Marx	12. Water Supply	5	15	..
Marx	13. Sanitary Engineering...	5	..	15
Marx ..	Sanitary Special.....	2	..	10

CHARLES D. MARX,
Professor of Civil Engineering.

MECHANICAL ENGINEERING

The teaching force in the Department of Mechanical Engineering for the year 1906-07 was as follows: W. F. Durand, Professor of Mechanical Engineering; G. H. Marx, Associate Professor of Machine Design; W. R. Eckart, Assistant Professor of Experimental Engineering; L. E. Cutter, Instructor in Drawing; C. N. Cross, Instructor in Experimental Engineering; J. E. Peterson, Foreman of Forge; J. E. Stanley, Foreman of Woodshop; J. B. Liggett, Foreman of Foundry; T. Palmateer, Foreman of Machine Shop.

During the first semester, 1038 student credit hours were given by eight instructors, or an average of 124 per instructor. The similar figures for the second semester are a total of 1041 student credit hours and an average per instructor of 124.

These numbers are obtained by multiplying the number of credit hours in each course by the number of students attending such course,

and they thus serve in a rough way to show the total bulk of instruction given and the average per instructor.

The classes taught and numbers in attendance are shown by the following tabular presentation:

INSTRUCTOR	COURSE	KIND OF WORK	HOURS CREDIT	ATTENDANCE	
				FIRST SEM.	SECOND SEM.
Stanley	1a, b. Wood Shop	Shop	1-3	93	61
Peterson	1c. Forge	Shop	1-3	48	45
Liggett	1d. Foundry	Shop	1-3	33	32
Palmateer	1e. Machine Shop	Shop	2-5	27	39
Cutter	2. Drawing	Drawing	2	58	70
Marx, G. H. ..	3a, b, c. Design	Lec. & Draw.	4-5	9	6
Marx, G. H. ..	4. Design	Lec. & Draw.	4	9	6
Cutter	5. Design	Lec. & Draw.	2	4	4
Durand	6. Heat Engines	Lec. & Draw.	3	72	40
Durand	7. Thermo-dynamics ..	Lecture	1	5	..
Eckart	8a. Experimental Eng..	Laboratory	3	15	37
Eckart	8b. Experimental Eng..	Laboratory	3	12	11
Eckart	8d. Experimental Eng..	Laboratory	3	8	..
Durand	9. Pumping Machinery	Lecture	2	..	45
Durand	10. Power Plants	Lecture	2	29	..
Durand	11. Seminary	Lecture	1	8	11

The work of the year as scheduled was carried forward without serious difficulty, although certain of the shops had suffered badly in the earthquake of April, 1906, and only temporary repairs have as yet been made.

With the return of Instructor Stanley in the Pattern Shop, from a year's leave of absence, a lecture system was inaugurated in this shop with improvement in illustrative material, and with a marked strengthening of the course of instruction in this line of work. Similar plans will be worked out for the Forge Shop and Machine Shop as soon as practicable.

During the year the head of the department was occupied as a member of the Commission of Engineering to an extent demanding about three-fourths of his actual time, thus reducing in a marked degree the amount of time which could be given to general departmental oversight. The work of the shops suffered most in this reduction of time, and such condition still further emphasizes the need of a superintendent of the shops who will be able to give his full time to this important branch of the work.

The general needs of the Department, in common with those of the other engineering departments, include primarily additions to the teaching force to cover certain important lines of work, and large additions to the equipment in shops and laboratories in order to make such instruction most effective. A beginning was made during the year in the provision of new equipment by the purchase of a new motor-driven engine lathe for the machine shop and in certain much needed extensions and improvements in the experimental engineering laboratory. The policy of the De-

partment will include a distinct effort looking toward further large improvements along these lines as rapidly as means will permit.

W. F. DURAND,
Professor of Mechanical Engineering.

ELECTRICAL ENGINEERING

The department personnel for the year has been as follows: Harris J. Ryan, Professor; Kenneth L. Curtis, Assistant Professor; S. Barclay Charters, Jr., Instructor.

The courses of instruction given are shown by the following table:

INSTRUCTOR	COURSE	HOURS PER WEEK					ATTENDANCE	
		LEC.	CLASS	DE-SIGN	LEC. LAB. DEM.	LAB.	FIRST SEMESTER	SECOND SEMESTER
Curtis, Charters ..	1	..	2	..	2	..	27	..
Charters.....	2a	..	..	..	1	..	18	..
Charters.....	2a	..	4	..	..	..	..	17
Curtis, Charters ..	2b	..	..	..	..	4	..	17
Ryan	3a	3	..	..	..	..	22	19
Ryan, Charters ...	3b	..	..	..	..	2	22	19
Ryan, Curtis	3c	..	..	2	..	..	22	19
Charters.	4	..	2	..	..	..	..	14
Ryan	5	..	..	..	..	..	23	20
Ryan	Graduate	..	..	..	..	..	1	..

The personnel of the department, aside from the work of instruction and research, has been greatly occupied with making progress in details of departmental organization relating to equipment and of methods of instruction, made possible by the equipment appropriation of 1906-07.

During the year the head of the department has co-operated with the university management in the conduct of the university electric service.

Two experimental investigations were begun and completed:

1. The development of a corona high-pressure indicator by Professor Ryan, which will be reported during the present year in the Transactions of the American Institute of Electrical Engineers.

2. The magnetic leakage factors that control regulation in the Scott arrangement of two-phase, three-phase transformers by Professor Ryan and Instructor Charters—to be reported during the present year in the *Journal of Electricity, Power and Gas*, San Francisco.

The 1906-07 book appropriation permitted the purchase of a valuable set of library reference books required for the work of the seniors in preparing papers presented before the students' electrical society.

The demand for young engineer-graduates continues strong, more positions being offered to members of the May, '07, graduating class than the number graduating.

HARRIS J. RYAN,
Professor of Electrical Engineering.

APPENDIX II

REPORTS OF COMMITTEES

STUDENT AFFAIRS

On behalf of the Committee on Student Affairs, I beg to submit the following report covering operations of the Committee during the academic year 1906-07, subsequent to October 1st, at which date the present committee was organized.

Early in the year the Committee was asked to submit a statement formulating its own conception of its powers, duties, and policy. This statement, as later approved by the Academic Council and as appearing in the printed legislation of the Faculty, is as follows:

POWERS AND DUTIES

"The Committee on Student Affairs shall exercise the authority of the University over all students individually with respect to personal conduct, and, with the exception of athletic and debating teams, over student organizations which bear the name of the University, or which represent the University in non-academic activities, and, in general, shall assume such measure of authority over any non-academic organization of students as may be needful to safeguard the general good name and well-being of the University community."

STATEMENT OF POLICY

"In the government of the University, the largest liberty consistent with good work and good order is allowed. Students are expected to show both within and without the University such respect for morality, personal honor, good order, and the rights of others as is demanded of good citizens. Failure to do this will be sufficient cause for removal from the University."

The general purpose and policy of the Committee has been carried out in accordance with the principles embodied in this statement.

The Committee found in process of organization a system of student control, covering house rules and general good order in Encina Hall, the development of which had been undertaken by the preceding committee. The general plans previously contemplated were carried forward, resulting in the establishment of a local government in Encina Hall which worked very satisfactorily throughout the year. In accordance with this general plan, the students of Encina Hall, organized as the Encina Club, elect a

house committee, and through this committee the club is held responsible for the formulation and administration of house rules and for the maintenance of good order. These duties were undertaken seriously and with a fine spirit of co-operation by the members of the club, and the experience of the year seems to promise a most satisfactory solution of the problem of good government in this residential hall.

Recognizing the important part played by the fraternities in the maintenance of general good order in the University community, the chairman called, at an early date in the year, a general conference of representatives of the fraternities to meet with the Committee for the purpose of frank and informal discussion of matters of importance in connection with the general problem of good order in the community. This conference was attended by representatives from each of the fraternities resident on the campus, and was participated in freely and with a generous purpose of reaching a common agreement which should permit the largest measure of personal and collective freedom, at the same time safeguarding the general purposes of the Committee as to good order. The general results of this conference seem to have been beneficial throughout the year, and it is probable that a repetition of such conference from year to year will serve to consolidate precedent and tradition in such manner as to form a most influential and important factor in the problem of local government.

Toward the latter part of the year an expression of opinion was desired by the President regarding the proper location of sorority houses with especial reference to the new sub-divisions of the campus. In accordance with this request and after careful consideration, the Committee adopted the following resolution:

"Resolved, That it is the sense of the Committee on Student Affairs that the irregular distribution of fraternity and sorority houses on the University campus is not for the best interests of the University community, and that it is desirable, where possible, in the assignment of building sites in the new sub-divisions that close proximity of fraternity and sorority houses should be avoided; and that it is especially undesirable that any sorority should be located at a relatively remote point on the campus community with only fraternities for immediate neighbors."

As a result of a further request from the Trustees regarding the setting apart of certain lots or some certain section of the new sub-divisions for sorority houses, the Committee recommended that lots numbers 2 to 8 in the San Juan sub-division be for the present reserved for such purposes, and that no sites in this block be allotted to men's fraternities.

Toward the close of the year the question of regulations regarding the lodging or living of students of both sexes in one house came before the Committee for joint consideration with the Committee on Public Health. As a result of a joint session of the two committees, it was agreed that the general determination of regulations bearing on these matters, as well as their executive interpretation, should be the duty of the Committee on

Student Affairs; while at the same time, having in view the fact that the Committee on Public Health in the course of its other duties naturally acquires information regarding the condition of student boarding-houses, etc., it was agreed that it should be the duty of the latter committee to inform lodging-house keepers and others interested regarding the character of these regulations, and to apply them in all simple and direct cases. Should, however, there arise any question of the interpretation of such rules, or any necessity for executive action under the same, the Committee on Public Health would report the facts to the Committee on Student Affairs, which latter committee would then assume general jurisdiction in the case.

In accordance with this understanding, the Committee adopted for application during the following academic year, rules as follows:

1. The lodging of students of both sexes in one lodging-house will not be permitted;
2. Lodging rooms for women will only be approved on condition that a reception room shall be provided for the use of such lodgers;
3. Clubs of women students will be permitted to organize for co-operative lodging or living purposes only on condition of providing a chaperon for their home.

Aside from these various actions of the Committee, which have been primarily constructive with relation to matters affecting good order and the conditions of life in the University community, there have arisen a considerable number of cases calling for disciplinary action of one kind or another. These cases have involved violations of the letter or spirit of the principles embodied in the statement of fundamental policy noted at the opening of this report, and covering such matters as fraud in examination, disorder and riotous conduct, either on the campus or abroad, and laxity in matters of personal and business honor. Penalties have been applied, ranging from personal interviews with advice, warning, and reproof, to suspension from the University for varying periods of time. From the first, the Committee has adopted the policy of publishing in the *Daily Palo Alto* a statement of all direct disciplinary action other than personal interview, warning, or reproof. This has had the effect of keeping the student body advised of actions of the Committee along disciplinary lines, as to its policy in such matters, and to this extent is intended to serve as notice and warning to those who might be tempted into departures from the high standard of personal and public duty and honor which we desire to maintain.

Very respectfully,

WILLIAM F. DURAND,
Chairman Committee on Student Affairs.

PUBLIC HEALTH

The members of the Public Health Committee for 1906-07 have been Professors Snow, Griffin, and Swain.

The routine administrative work of the Committee has been similar in amount and kind to that of previous years, which have been reported in detail. The statistical details may be largely omitted here, but are kept on file in the Committee's office.

In the health registration examination for new students, 19 gave a history of ill-health, and arranged for limited work under medical supervision; 59 were recorded as "below average," and have been under the Committee's observation during the year; 54 were recorded as distinctly above average; 176 students petitioned for reduction of work on account of illness; 43 registered for less than 13 units; 65 reduced units during the semester; 68 took out leaves of absence. This number is distributed according to years of experience in college as follows: Freshmen 79, Sophomores 53, Juniors 25, Seniors 16, Graduates 3.

The Students' Guild provided hospital care for 197 cases of illness among the students during the year. These illnesses represent a wide range and include practically all the acute illnesses among the students. The University is fortunate in possessing an excellent hospital and a thoroughly competent corps of well-trained practicing physicians in the community. The most serious and complicated surgical and medical cases have been provided for to the entire satisfaction of parents living at a distance. Details of distribution of these cases and financial statements relative to the operation of the Students' Guild are on file for reference in the Committee's office. The directors purchased the improved property adjoining the hospital for \$3,800. The lot has a frontage of 62 feet on Lytton Avenue, and is of the same depth (125 feet) as the hospital property. The cottage included in the purchase will be used as a dormitory for the nurses on the hospital staff. This purchase, as in preceding instances, was made through Building and Loan Associations. This arrangement makes it possible to provide adequately for the present generation of University students, and at the same time to steadily accumulate property-holdings which constitute a reserve fund for future student generations.

The University Council revised and enlarged the powers and duties of the Committee during the year. The policy of the Committee has been changed to read: "The University curriculum is adapted to students in normal health and physical development. Students whose health distinctly interferes with regular University work and residence will be required to withdraw, or will remain strictly on probation with the Committee on Public Health." The Committee has been granted the necessary authority to carry out this policy.* The membership of the Committee

* See published summary of "General Legislation and Standing Regulations of the Faculty." Revision of May 1, 1907.

has been increased to five, and the President instructed to designate annually the three members from this number who shall serve on the Students' Guild Board of Directors.

The examination of entering students has been made more thorough, and is now practically equivalent to the ordinary life-insurance examination required by all representative companies.

The rooming and boarding facilities on the campus are neither adequate nor satisfactory. The Committee has for several years made statistical summaries of the distribution of the students by residence and by boarding arrangements. In 1906-07 there were 926 students rooming on the campus. Approximately 700 of this number boarded at their places of residence or in near-by houses, and 226 went from one-fourth of a mile to two miles for each meal; 262 students lived with their parents or relatives during the year; 476 students rented rooms and arranged for board in Palo Alto and the other neighboring residence districts. Of these non-resident students, some preferred to live off the campus for reasons of greater economy, but probably seventy-five per cent of the number would live on the campus if arrangements could be made. The Committee is preparing a formal report on this matter for presentation to the President.

WILLIAM F. SNOW,
Chairman.

APPENDIX III

REPORT OF THE REGISTRAR

The total number of students in attendance in 1906-07 was 1668. Of these 1155 were students who had previously been in attendance, 513 were new students. As compared with 1905-06, there was an increase in old students of 86 and a decrease in new students of 204, making the total falling off from the previous year 118. The decrease in new students is sufficiently accounted for by the earthquake of April 18, 1906. It is significant, however, that this tendency to go elsewhere for college work did not affect to any extent those who were already students.

STATISTICS OF REGISTRATION, 1902-1907

	1902-03	1903-04	1904-05	1905-06	1906-07
Old students	909	970	982	1069	1155
New students	574	515	586	717	513
	<hr/> 1483	<hr/> 1485	<hr/> 1568	<hr/> 1786	<hr/> 1668
Percentage of old students returning	70.1	65.4	66.1	68.2	64.1
From California	1171	1119	1188	1341	1329
From other States	312	366	380	445	339
Percentage outside Califor- nia	21.	24.6	24.2	24.9	20.3

AVERAGE AGE AT MATRICULATION

Graduates*	28.6	27.6	29.2	30.	29.7
Advanced standing	23.6	22.4	22.4	22.7	21.5
Freshmen	20.8	20.6	19.8	20.	19.9
Specials	25.8	24.5	25.1	24.1	25.

AGE OF FRESHMEN AT MATRICULATION

Under 17	3	9	9	11	5
17-18	38	45	40	45	34
18-19	78	88	81	112	89
19-20	60	77	96	152	118
Over 20	174	168	161	161	161

* From other colleges.

STATISTICS OF ENTERING CLASS, 1906-07

	Number Entering	Number Return- ing 1907-08	Dropped for Poor Scholarship
From Colleges—			
Graduates.....	15	5(33.3%)	0
With advanced standing.....	69	50(72.4%)	2(3%)
Without advanced standing..	6	1(16.6%)	2.(33.3%)
	<u>90</u>	<u>56(68.4%)</u>	<u>4(4.4%)</u>
From Normal Schools.....	19	13(68.4%)	0
From Preparatory Schools—			
On recommendation (wholly or mainly):			
In full undergraduate standing	256	288(76.2%)	37(10%)
In partial standing.....	113		
Wholly on examination:			
In full standing.....	0		
In partial standing	9		
	<u>378</u>		
As special students.....	26	16(61.5%)	2(8%)
	<u>513</u>	<u>373(72%)</u>	<u>43(8.3%)</u>

COMPARATIVE NUMBERS AT MATRICULATION

	1904-05	1905-06	1906-07
From Colleges and Normal Schools—			
Graduates of colleges.....	40	40	15
With advanced standing.....	102	134	69
Without advanced standing..	29*	47	25
	<u>171</u>	<u>221</u>	<u>109</u>
From Preparatory Schools—			
On recommendation (wholly or mainly):			
In full standing.....	147	228	256
In partial standing.....	209	201	113
Wholly on examination:			
In full standing.....	1	0	0
In partial standing.....	2	6	9
	<u>359</u>	<u>435</u>	<u>378</u>
Special students	56	61	26
Total.....	<u>586</u>	<u>717</u>	<u>513</u>

* Counting Normal School graduates who may apply for advanced credit later.

CLASSIFICATION BY MAJOR SUBJECTS

	1903-04	1904-05	1905-06	1906-07
Greek	14	10	16	15
Latin.....	60	72	74	58
Germanic Languages.....	74	88	101	95
Romanic Languages.....	43	43	44	23
English.....	246	226	222	178
Philosophy	5	3	4	0
Psychology	3	5	7	6
Education	23	21	27	25
History	98	93	104	128
Economics.....	79	90	93	97
Law.....	212	209	308	299
Drawing.....	23	19	30	32
Mathematics	31	33	36	25
Physics	9	10	11	10
Chemistry	77	93	107	84
Botany	20	18	22	28
Physiology	73	71	66	64
Zoology	27	39	32	29
Entomology	12	12	14	12
Geology and Mining	118	124	127	126
Civil Engineering.....	85	118	138	146
Electrical Engineering.....	94	110	127	115
Mechanical Engineering.....	49	71	76	73
	1485	1568	1786	1668

DISTRIBUTION OF ENTERING CLASS, 1906-07

FROM COLLEGES, ETC.

Baltimore Polytechnic Institute	1	Lawrence University	1
Butler College	1	Lewis Institute	1
Centre College (Ky.)	2	Mills College	1
Cornell University	3	Montana Agricultural College	1
Denison University	1	National Normal University .	1
Fairmount (Kansas) College .	1	Oberlin College	2
Fort Worth (Texas) University	1	Occidental College	2
Georgetown University	1	Oregon Agricultural College .	1
Grand Island (Neb.) College .	1	Pomona College	9
Helsingfors and Upsala Univ. S.	1	Radcliffe College	1
Hillsdale College	1	Santa Clara College	1
Illinois College	1	Sheffield Scientific School . .	1
Indiana University	1	St. Vincent's College	1
Iowa State College	2	Syracuse University	1
Kansas Wesleyan University . .	1	Trinity College (Conn.) . . .	2

Report of the President

69

University of Calcutta . . .	2	University of the Pacific . . .	1
California . . .	12	Southern Cal. . .	2
Chicago . . .	4	Washington . . .	3
Iowa . . .	2	Wisconsin . . .	2
Michigan . . .	4	Vassar College	1
Minnesota . . .	1	Whitman College	1
Missouri . . .	1	Whittier College	3
Nebraska . . .	3	Western Univ. of Pennsylvania	1
Oregon . . .	1	Yale University	1

FROM NORMAL SCHOOLS

Chico State Normal . . .	2	San Diego State Normal . . .	3
Indiana State Normal . . .	1	San Jose State Normal . . .	8
Los Angeles State Normal . .	2	Warrensburg (Mo.) State Nor.	1
Oswego (N. Y.) State Normal .	1	Winona (Minn.) State Normal	1

FROM PREPARATORY SCHOOLS

Alameda H. S.	6	Dixon H. S.	1
Allen Prep. Sch. (Portland, Or.)	1	Eureka H. S.	4
Annie Wright Sem. (Tacoma) .	2	Fresno H. S.	9
Astoria (Ore.) H. S. . . .	2	Fruitvale H. S.	1
Banning H. S.	1	Fullerton H. S.	1
Belmont School	5	Gilroy H. S.	1
Berkeley Inst. (N. Y.) . . .	1	Girls' H. S. (San Francisco) .	2
Boone's University School . .	1	Girls' Collegiate Sch. (L. A.) .	7
Bradley Poly. Inst.	1	Glenalmond College (G. B.) .	1
California College	1	Glendale H. S.	2
Cal. Sch. Mech. Arts	4	Grand Junction (Colo.) H. S. .	1
Carthage (Ind.) H. S. . . .	1	Great Falls (Mont.) H. S. . .	1
Campbell H. S.	2	Hanford H. S.	3
Chamberlin Inst. (N. Y.) . .	1	Harker School	4
Chico H. S.	1	Harvard School (L. A.) . . .	9
Clinton (Conn.) H. S. . . .	1	Miss Head's School	1
Clovis H. S.	1	Hill Mil. Acad. (Portland, Or.)	1
Cobelskill (N. Y.) H. S. . .	1	Hollister H. S.	2
Colton H. S.	1	Honolulu H. S.	1
Colfax (Wn.) H. S.	1	Horton School	1
Compton H. S.	1	Ione H. S.	1
Corona H. S.	1	Kalispell (Mont.) H. S. . . .	1
Council Bluffs H. S.	2	Kansas City Central H. S. . .	1
Crockett H. S.	2	Kidder Institute	2
Cumberland (B. C.) H. S. . .	1	La Grange (Ill.) H. S. . . .	1
Davenport (Wn.) H. S. . . .	1	Leipzig (Ger.) Realschule . .	1

Lewiston (Id.) H. S.	1	Renssaeler (Ind.) H. S.	1
Lodi H. S.	2	Riverside H. S.	7
Long Beach H. S.	1	Rowland Hall (Salt Lake) . . .	1
Los Angeles H. S.	17	Sacramento H. S.	8
Los Gatos H. S.	2	St. Matthews Sch. (San Mateo) .	2
Lowell H. S.	4	St. Vincent's College	2
Lyceum School	3	San Bernardino H. S.	7
Manzanita Hall	3	Salinas H. S.	4
Macalester Acad. (St. Paul, M.)	1	Salt Lake H. S. (Utah)	2
Mackenzie School (N. Y.) . . .	1	San Jose H. S.	16
Marlborough School	2	San Diego H. S.	5
Marshalltown (Ia.) H. S. . . .	1	San Mateo H. S.	1
Merced H. S.	1	San Luis Obispo H. S.	5
Minneapolis Central H. S. . . .	1	Santa Ana H. S.	3
Minneapolis East H. S.	1	Santa Barbara H. S.	3
Mission H. S. (S. F.)	4	Santa Clara H. S.	5
Modesto H. S.	2	Santa Maria H. S.	1
Moline H. S.	1	Santa Monica H. S.	3
Monrovia H. S.	1	Santa Rosa H. S.	6
Mountain View H. S.	2	St. Paul (Minn.) Mch. Arts H.S.	2
Mount Tamalpais Mil. Acad. . .	4	Selma H. S.	1
Muskegon (Mich.) H. S.	1	Santa Cruz H. S.	1
Nevada (Ia.) H. S.	1	Sandusky H. S.	1
New York H. S. of Commerce . .	1	South Canon (Colo.) H. S. . . .	1
North Platte (Neb.) H. S. . . .	1	Spokane (Wn.) H. S.	9
North Tonawanda (N. Y.) H. S.	1	Stockton H. S.	1
Notre Dame H. S. (San Jose) . .	1	Sutter H. S.	2
Oahu College	2	Tacoma (Wn.) H. S.	1
Oakland H. S.	1	Throop Polytechnic Inst. . . .	11
Ogden (Utah) H. S.	1	Truckee H. S.	1
Olean (N. Y.) H. S.	2	Terre Haute (Ind.) H. S. . . .	2
Omaha (Neb.) H. S.	1	Trinity School (S. F.)	1
Orange H. S.	1	Tulare H. S.	2
Oroville H. S.	1	Ukiah H. S.	3
Palo Alto H. S.	21	University School (S. F.) . . .	2
Pasadena H. S.	7	Univ. of Utah (Prep.)	1
Pasadena Eng. Class. School . .	1	Univ. of Minnesota (Agr.) . . .	1
Paso Robles H. S.	1	Ventura H. S.	3
Phoenix (Ariz.) H. S.	1	Visalia H. S.	5
Pomona Coll. (Prep.)	2	Washburn School	3
Portland Academy (Ore.)	2	Washington (D. C.) Cen. H. S.	2
Polytechnic H. S. (S. F.)	4	Washington (D. C.) M. Tr. H.S.	1
Prescott (Ariz.) H. S.	1	Waterbury (Vt.) H. S.	1
Red Creek (N. Y.) H. S.	1	Waukegan (Ill.) H. S.	1
Redlands H. S.	5	Whittier H. S.	1
Redwood H. S.	6		

REGISTRATION OF STUDIES

Fifteen units constitute a normal semester's work. The following was the actual registration during 1906-07:

		Number of Students	
		First Semester	Second Semester
For 1 unit	1	1	1
2	0	3	3
3	3	2	2
4	6	4	4
5	3	4	4
6	5	6	6
7	1	5	5
8	8	5	5
9	20	7	7
10	24	27	27
11	42	56	56
12	58	69	69
13	166	182	182
14	238	201	201
15	460	456	456
16	242	175	175
17	145	119	119
18	100	103	103
19	0	2	2
20	0	1	1
Over 20	0	0	0

PETITIONS BEFORE COMMITTEE ON REGISTRATION, 1906-07

	First Semester	Second Semester
Total number of petitions acted upon	869	547
To change registration by dropping subjects, or taking up new subjects, or both.	501	283
To change major subject	93	21
To register for fewer than thirteen units	151	115
To register for more than eighteen units	12	6
For leave of absence	72	54
Miscellaneous	35	68

STATISTICS OF GRADUATION

The total number of degrees conferred in 1906-07 (not counting those conferred Sept. 7, 1906) was 234, distributed as follows:

	Ph.D.	J.D.	A.M.	Engr.	LL.B.	A.B.
Greek	1
Latin	1	..	..	..	16
Germanic Languages	12
Romanic Languages	1	..	..	..	7

had full sway. Michigan, for example, included Physics, without laboratory work, and half-year courses in Chemistry, Geology, Zoology, Physiology, Physical Geography, Botany, and Astronomy. Chicago, which opened a year later than Stanford, credited half-year work in Physiology, Geology, Physiography, Astronomy, Botany, and Zoology. Illinois credited one-term science courses on the three-terms-to-the-year basis. Nearly all the universities East and Middle West credited one-year courses in the modern languages, and, in actual practice, the Middle West universities credited first-year Latin.

REASONS FOR REJECTING SUBJECTS ACCEPTABLE TO OTHER UNIVERSITIES

For two reasons Stanford took a position which did not permit it to accept work freely credited at other universities:

(1) It was believed that the methods and standards of work in the high schools needed to be changed. It was felt, for example, that to accomplish the least amount that was worth while in a foreign language the high school pupil must be held to two years' work. Similarly the science departments felt that the best results in high school work demanded less scattering over many subjects and concentration upon a fewer number, with a full year's work in each under modern methods, and with due emphasis upon individual laboratory work by the pupil. In History, the University rejected General History, in the belief that better results would be accomplished by dealing with special periods or nations, in this respect anticipating the later position of all the universities.

(2) The non-prescription of particular subjects for admission and the apparent slighting of Mathematics, Latin, and other traditional subjects was so radical a departure as to arouse the fear, or suspicion, in outside circles that the University did not stand for any definite or thorough entrance preparation. This fear would be actually well founded if the University were to accept in large quantities the smattering preparation in numerous subjects which other universities seemed to find innocuous in smaller doses. When all subjects were placed on an exact equality it became more necessary to make sure that every subject credited should represent thorough and satisfactory preparatory training. In a pamphlet entitled "Entrance Requirements," issued in 1893, the position and policy of the University was stated as follows:

"In this arrangement of entrance requirements the University disclaims any intention of imposing any particular course or courses of study upon the high school, or of expressing any opinion as to the relative value of the various courses. It is not, however, indifferent to the work of the high schools, or to their relations to the University, and it conceives that its plan of entrance requirements is of value to preparatory schools, chiefly in two ways:

(1) By offering a wider range of subjects, and placing all on an exact equality. By this arrangement high schools and preparatory schools are given somewhat greater freedom in making up their courses of study, and are under less compulsion to arrange their work solely with regard to those students who are preparing for college. . . . A comparatively small

FACULTY LEGISLATION

Character requirements for entering students: In May, 1906, the Academic Council directed "that the Committee on Admission and Advanced Standing require each applicant (for admission) to present from his school complete and specific information as to scholarship and character, and that on the basis of such information the Committee accept only such applicants as they deem desirable." This action was taken with a proviso "that it be adopted as a guide to action for this summer by the Committee concerned, and that full consideration of the matter be made the special order of business for next fall." The experience of the Committee in carrying out this provision was made the subject of an extended report to the Academic Council September 7, 1906. The following extracts from the Committee's report summarize the results of this experiment and the conclusions reached:

"The wording of the Advisory Board recommendation afforded no clue to the principle of action which it was intended the Committee on Admission should follow. But the discussions which had preceded the adoption of the recommendation, and particularly the President's statement as to the desirability and necessity of limiting the number of students, had indicated the nature of the experiment to be undertaken by the Committee. In connection with the regular work of the Committee on Scholarship it had been seriously questioned whether, in addition to the stated weeding out of the poorest students, some way could not be found for removing the merely poor students—those of mediocre ability or lacking scholarly ambition, who, while managing to scrape through even to graduation, are nevertheless a severe drag upon the University and contribute toward a lowering of standards. Again, many of the problems of student government arise from the fact that present rules and methods of admission do not exclude applicants of vicious habits or tendencies, whose presence in the University is a continual menace to good order and to high standards of conduct. Toward any not yet admitted as students, the University has no responsibilities except such as it voluntarily chooses to assume. The right of the University is clear to accept only such students as it shall choose to accept. If, therefore, a way can be devised to exclude the mediocre and unambitious, on the one hand, and the weak and vicious, on the other, problems of student government will be greatly simplified and standards of conduct and scholarship improved.

"Mindful of these considerations, and of the expressed urgent necessity of limiting numbers, the Committee concluded that it was expected by the Academic Council to exclude, as far as possible, three classes of applicants:

(1) Persons of mediocre ability, who give no positive promise of becoming genuine students.

(2) Persons of good ability, but not mature or serious minded, and not likely to make good university students.

(3) Persons of doubtful character, or frivolous disposition, or whose interests are likely to be absorbed by society, athletics, etc.

"This principle conceded, that the University may henceforth elect to receive only applicants of positive good promise intellectually and morally, there still remained the problem of how much discrimination was actually to be accomplished by the University.

"The resolution of the Academic Council directed the Committee to require the applicant to present the complete and specific information as

to scholarship and character upon which the Committee's action was to be based. The line of reasoning leading up to this position of the Council proceeded from the premise that discrimination of the sort intended can not be reached through direct coöperation with high school principals. To expect high school principals to enforce superior standards of scholarship and conduct as prerequisite to recommendation to the University, it was held, is to expect the impossible. The University must act independently, and take the full responsibility. But, manifestly, information as to scholarship must come from the principal or school authorities. The school would also be the most available source of knowledge concerning habits, tendencies, and conduct of applicants. General testimonials furnished by the applicant himself would be practically worthless as a basis of discrimination. If, therefore, the University is to act independently, and at its discretion reject credentials furnished by the school, and assume full responsibility, such information must be treated as strictly confidential—indeed, upon no other terms could it be obtained.

"A blank was therefore devised by the Committee covering certain specific points, and principals were asked to fill out these blanks and send them to the Committee as strictly confidential documents.

"During the summer (up to September 3, 1906) 460 of these documents have been received. They may be classified as follows:

Unqualifiedly favorable.....	193
Perfunctory, but favorable.....	140
Qualifiedly favorable.....	77
Perfunctory, but neutral.....	22
Qualifiedly unfavorable.....	27
Unqualifiedly unfavorable.....	1
Total.....	460

"In those listed as 'perfunctory,' no information was given other than monosyllabic replies to the printed questions. Perhaps a third of those listed as 'qualifiedly favorable' might have been rejected under a strict interpretation of the Council resolution; and if limitation of numbers had been the only consideration, equities being disregarded, all of those in the last three groups might have been refused admission.

"At first all statements were gone over individually and in detail by the full Committee. After the general principle of action had been developed only those calling for special consideration were brought before the Committee, the rest being checked up by the chairman.

"Twelve statements in all were indorsed 'not accepted' by the Committee. In nine of these cases, however, the action of the Committee was afterward reversed and the credentials accepted. Of the remaining three, from whom no response was received, and who made no attempt to reopen the matter, one was only partially recommended, and, even if his credentials had been accepted, would not have had credits enough to make admission probable. In the other two cases full credentials were offered, the one from a California State Normal School, the other from a California College. The net result of the experiment, therefore, so far as it affects numbers, was the apparent exclusion of two young women from the University.

"Your Committee respectfully submit that as a means of excluding undesirable students, or materially limiting numbers, the plan of the Academic Council has not been found practicable. The desirability of a higher standard of admission, both as regards character and scholarship, still remains, and it is recommended that further consideration be devoted to the subject through the appropriate committees and by the Council itself.

"It has been suggested that, irrespective of any possibility of using

the information collected for purposes of exclusion from the University, the present blank, or one more appropriate, be retained. The confidential statements of principals and others would be of great value to the Committees on Student Affairs and on Scholarship, and if used for information only would be more freely and fully given by school authorities. If such a blank is to be continued, the purpose of it should be made perfectly clear, both to the high school principal and to the University committees. Merely as a matter of curious reference to confirm later action of either committee, these statements will hardly be worth while. They will be of real value only in case the information there given is put into the hands of the University authorities and committees for immediate use in the way of corrective guidance, stimulation, and influence upon environment and habits. Not even in this form should such statements be accepted, without full consideration, as a complete substitute for the direct attempt to raise standards of admission."

This report was referred to the Council by the Executive Committee for further consideration.

In the Executive Committee, the whole question as to the relation of the University to the preparatory school, particularly with reference to acceptance of credentials on recommendation, was given extended consideration. As a result, the Executive Committee recommended, and the Council approved, a modification of the conditions of admission, which involved the following points:

(1) Emphasis upon quality of preparation and intellectual promise, personal character, and seriousness of purpose.

(2) The records of first-year students to be taken into account in determining as to the continuance of accrediting privileges to preparatory schools.

The following is a full statement of the action taken:

"The University will receive recommendations from preparatory schools accredited

(A) by (1) the New England College Entrance Certificate Board, (2) the North Central Association of Colleges and Secondary Schools, (3) colleges and universities of recognized standing;

(B) upon inspection undertaken or authorized by the University (such inspection to be temporarily waived in the case of schools which have sent five or more pupils to the University, and whose graduates have made satisfactory records in the University).

"Entrance credit will be granted on recommendation of the principal, provided: (a) the school maintains a full four-years' course of high school work; (b) the candidate has completed the full course and has been duly graduated after at least one year's attendance; (c) the time given to the subject and the amount of work covered are substantially as indicated in the outline of entrance subjects; (d) the grade of work is satisfactory (ordinarily not less than ten per cent above the lowest passing grade; but lower passing grades in a particular subject or subjects may be offset by a high general average or by decided intellectual promise); (e) the personal qualities and habits of the candidate are such as to commend him to the University authorities.

"It is the purpose of the University to emphasize (1) quality of preparation and intellectual promise, (2) personal character and seriousness of purpose. Principals are expected to exact a high standard of scholarship as preliminary to recommendation, and to withhold recommendation from

those who are undesirable or unpromising from the point of view of moral qualities or habits.

"Acceptable entrance credentials must show that the specific requirements prescribed by the University have been met; but in so far as the question of fulfilling requirements turns upon personal qualities and tendencies not clearly evident nor easily determined, it is the purpose of the University to follow the judgment of the principal, subject to the correction implied in the succeeding paragraph.

"The record of first-year students will be considered as additional evidence of the standing of preparatory schools, and of their good faith and success in meeting the requirements of the University, and such evidence will be made use of in determining as to the continuance of accrediting relations.

"The principal is not expected to give any information the substance of which he does not state, or is unwilling to state, to the candidate."

In this connection the following resolution, offered by Professor Peirce, was adopted by the Council:

"Resolved, That in view of the necessity on the part of this University of limiting the number of students, the Executive Committee be, and hereby is, instructed to examine the plan of admission by examination only, to ascertain the feasibility of the plan,—whether it would limit the number to those of superior qualifications,—and, having made careful study of the subject, to report its conclusion, with or without recommendation, to this Council."

The resolution was referred by the Executive Committee to a special sub-committee, which, not being ready to report, was continued for 1907-08.

Early in the year the Committee on Admission and Advanced Standing, having in view the small number of students entering on examination, and the desirability of co-operating with the College Entrance Examination Board, recommended the abolition of entrance examinations at the University.

This recommendation received the approval of the Executive Committee, and was transmitted to the Council January 11, 1907. Here decided opposition was manifested, and the Committee on Admission was asked to present a full report covering the facts of the case. This report, transmitted to the Council February 4, 1907, gives a historical resumé of admission requirements at Stanford, and is appended herewith (Appendix IV).

The recommendation of the Committee was finally rejected by the Council (February 20, 1907) and a substitute motion adopted retaining the August-September examinations. The Council also voted that principals' recommendations in English be accepted for credit on the same terms as recommendations in other subjects.

On recommendation of the Committee on Admission, approved by the Executive Committee, the following additional subjects were added to the supplementary entrance list (that is, to the subjects acceptable on recommendation from approved schools, but not subjects in which entrance examinations are offered by the University): Civics, Architectural Drawing, Music, Domestic Science, and Commercial Subjects. Except in the

cases of Commercial Subjects and Domestic Science, only subjects recognized by universities of high rank were thus added. The inclusion of Domestic Science and Commercial Subjects was based on the conviction that the serious work of Polytechnic and Commercial High Schools should receive appropriate recognition. The precise limits of this work were left undefined, to be determined after further consideration by the Committee on Admission.

A revision and further codification of the general legislation and standing regulations of the Faculty was undertaken by the Executive Committee, and the results of its labor approved by the Academic Council, May 1, 1907. Only minor changes affecting University policy were made. One change of importance, affecting the standing of first-year students, was the regulation requiring that such students, during their first semester in the University, complete at least half (instead of a third) of the work registered, in order to retain their standing in the University. The regulation requiring students, after their first semester, to make two-thirds of the work registered remains unchanged.

In March, 1906, action was taken abolishing the degree of Bachelor of Laws after May, 1906. On recommendation of the Department of Law, this action was modified (January 11, 1907) so as to provide that the degree of Bachelor of Laws be not conferred on students matriculating after April, 1906.

In the interest of "a more uniformly high standard of scholarship," the Registrar prepared and laid before the President, by direction of the Executive Committee, statistics covering the semester reports in elementary classes for the preceding three years.

Respectfully submitted,

O. L. ELLIOTT,
Registrar.

APPENDIX IV

REPORT OF THE COMMITTEE ON ADMISSION AND ADVANCED STANDING ON ENTRANCE EXAMINATIONS AND CONDITIONS OF ADMISSION

(Transmitted to the Council, February 14, 1907.)

At a meeting of the Academic Council held January 11, 1907, a recommendation was presented from the Executive Committee proposing to abolish entrance examinations at the University (except in English Composition and Oral Interpretation of Literature), and to insert the following paragraph in the Register:

"After January, 1908, entrance examinations will not be given at the University, except in English Composition and Oral Interpretation of Literature. Candidates desiring to enter on examination, or to supplement credit received on recommendation from approved schools, will be advised to take the examinations of the College Entrance Examination Board."

On motion of Professor Jenkins, the recommendation was referred to the Committee on Admission and Advanced Standing to investigate all the facts and report back to the Council.

The proposal to abandon entrance examinations at the University is in reality only a detail in the development of the general policy of the University, a corollary of the direct relation to be perfected between the University and the preparatory school. The facts bearing upon this proposal can be best exhibited, therefore, by a brief historical review of the conditions of admission at Stanford, the particular problems which the Committee has had to face, the measures progressively adopted for the solution of these problems, and the extent to which the ground has been cleared for a more direct relation with the preparatory school.

I. THE ORIGINAL PLAN

The first entrance requirements of the University, as announced in Circular No. 3, published before the opening of the University, were modeled after the requirements of the University of California, though varying from their prototype in minor particulars. They were divided into three groups, as follows:

(I) General Requirements, prescribed for all candidates — English Language, Arithmetic, Algebra, Plane Geometry, Geography, History of the United States, Elementary Latin, Physics.

(II) Scientific Requirements, one subject (to be chosen by the candidate) required — Advanced Mathematics, Freehand Drawing, Chemistry, Physiology, Zoology, Botany.

(III) Language or Literature Requirements, two subjects (to be chosen by the candidate) required — Advanced Latin, Elementary Greek, Advanced Greek, Elementary French, Elementary German, English Literature, General History.

The definition of subjects in Group II was very general, but they were evidently intended to conform to the then existing high school standards. In Group III each subject was said to represent a year's high school work.

II. THE NEW PLAN — NON-PRESCRIPTION OF SUBJECTS

When the matter was taken up by the Faculty, after the opening of the University, a new plan was evolved (December, 1891). All prescription of subjects (except English Composition and Elementary English Literature) was abandoned. Geography, Arithmetic, and General History were omitted from the list, and the time-requirement in French and German was advanced to two years each. More radical still, each of the natural sciences was defined as representing a full year's work, with special emphasis upon laboratory instruction.

RELATION TO EXISTING PREPARATORY COURSES

This action of the Faculty simplified the terms of admission, and at the same time fixed a gulf of separation between University requirements and high school preparation. At that time the University of California did not recognize French and German at all, nor General History. It allowed a choice of one among Chemistry, Botany, Physiology, and Mineralogy, each presumably representing a half-year's work, but no emphasis was placed upon these subjects and little attention was given them by the high schools. Physics it required of all candidates, but laboratory work was not expected. Other subjects in the California list did not differ materially from the Stanford definitions. In actual administration, therefore, no great embarrassment was occasioned at first in dealing with California schools. (It should be noted that French and German, with two years' preparation in each, were added to the California list in 1893, and full-year science subjects in 1896.) In Eastern university requirements, practically no account was taken of the so-called new subjects, and candidates from Eastern schools could generally offer full undergraduate credentials without trenching upon General History, Freehand Drawing, or the natural sciences. Cornell, for example, prescribed Physiology and Hygiene, but this did not necessarily represent anything more than grammar school work; and none of the other troublesome subjects were in its entrance list. With the Middle West the case was quite different. Here General History reigned supreme, and the one-term natural science courses

Lewiston (Id.) H. S.	1	Renssaeler (Ind.) H. S.	1
Lodi H. S.	2	Riverside H. S.	7
Long Beach H. S.	1	Rowland Hall (Salt Lake) . . .	1
Los Angeles H. S.	17	Sacramento H. S.	8
Los Gatos H. S.	2	St. Matthews Sch. (San Mateo) .	2
Lowell H. S.	4	St. Vincent's College	2
Lyceum School	3	San Bernardino H. S.	7
Manzanita Hall	3	Salinas H. S.	4
Macalester Acad. (St. Paul, M.)	1	Salt Lake H. S. (Utah)	2
Mackenzie School (N. Y.) . . .	1	San Jose H. S.	16
Marlborough School	2	San Diego H. S.	5
Marshalltown (Ia.) H. S. . . .	1	San Mateo H. S.	1
Merced H. S.	1	San Luis Obispo H. S.	5
Minneapolis Central H. S. . . .	1	Santa Ana H. S.	3
Minneapolis East H. S.	1	Santa Barbara H. S.	3
Mission H. S. (S. F.)	4	Santa Clara H. S.	5
Modesto H. S.	2	Santa Maria H. S.	1
Moline H. S.	1	Santa Monica H. S.	3
Monrovia H. S.	1	Santa Rosa H. S.	6
Mountain View H. S.	2	St. Paul (Minn.) Mch. Arts H.S.	2
Mount Tamalpais Mil. Acad. . .	4	Selma H. S.	1
Muskegon (Mich.) H. S.	1	Santa Cruz H. S.	1
Nevada (Ia.) H. S.	1	Sandusky H. S.	1
New York H. S. of Commerce . .	1	South Canon (Colo.) H. S. . .	1
North Platte (Neb.) H. S. . . .	1	Spokane (Wn.) H. S.	9
North Tonawanda (N. Y.) H. S.	1	Stockton H. S.	1
Notre Dame H. S. (San Jose) . .	1	Sutter H. S.	2
Oahu College	2	Tacoma (Wn.) H. S.	1
Oakland H. S.	1	Throop Polytechnic Inst. . . .	11
Ogden (Utah) H. S.	1	Truckee H. S.	1
Olean (N. Y.) H. S.	2	Terre Haute (Ind.) H. S. . . .	2
Omaha (Neb.) H. S.	1	Trinity School (S. F.)	1
Orange H. S.	1	Tulare H. S.	2
Oroville H. S.	1	Ukiah H. S.	3
Palo Alto H. S.	21	University School (S. F.) . . .	2
Pasadena H. S.	7	Univ. of Utah (Prep.)	1
Pasadena Eng. Class. School . .	1	Univ. of Minnesota (Agr.) . . .	1
Paso Robles H. S.	1	Ventura H. S.	3
Phoenix (Ariz.) H. S.	1	Visalia H. S.	5
Pomona Coll. (Prep.)	2	Washburn School	3
Portland Academy (Ore.)	2	Washington (D. C.) Cen. H. S.	2
Polytechnic H. S. (S. F.)	4	Washington (D. C.) M. Tr. H.S.	1
Prescott (Ariz.) H. S.	1	Waterbury (Vt.) H. S.	1
Red Creek (N. Y.) H. S.	1	Waukegan (Ill.) H. S.	1
Redlands H. S.	5	Whittier H. S.	1
Redwood H. S.	6		

REGISTRATION OF STUDIES

Fifteen units constitute a normal semester's work. The following was the actual registration during 1906-07:

		Number of Students	
		First Semester	Second Semester
For 1 unit		1	1
2		0	3
3		3	2
4		6	4
5		3	4
6		5	6
7		1	5
8		8	5
9		20	7
10		24	27
11		42	56
12		58	69
13		166	182
14		238	201
15		460	456
16		242	175
17		145	119
18		100	103
19		0	2
20		0	1
Over 20		0	0

PETITIONS BEFORE COMMITTEE ON REGISTRATION, 1906-07

	First Semester	Second Semester
Total number of petitions acted upon	869	547
To change registration by dropping subjects, or taking up new subjects, or both.	501	283
To change major subject	93	21
To register for fewer than thirteen units	151	115
To register for more than eighteen units	12	6
For leave of absence	72	54
Miscellaneous	35	68

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15	460	456
16	242	175
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18	100	103
19	0	2
20	0	1
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REASONS FOR DISCONTINUING THE UNIVERSITY'S ENTRANCE EXAMINATIONS

In view of all these considerations, the proposed step which the University is asked to take — the omission of the August and January examinations — seems too slight to cause any apprehension of unfavorable effect upon the University or hardship to future candidates for admission. Positive arguments in favor of this action may be summarized as follows:

(1) There are few legitimate demands for August and January examinations, and these demands will tend to decrease under the policy already adopted.

(2) Candidates who might legitimately take the August examinations can, after receiving due notice, prepare for and rely upon the June examinations of the College Entrance Examination Board.

(3) No serious attempt is made by the University to provide for the needs of undergraduates matriculating in January, and in so far as the proposed action discourages such candidates (which, however, will not be to any very large extent) it will do the candidates a service.

(4) The University will be freed from the expense and trouble of operating the extensive machinery of entrance examinations — examinations which are not at present, as a whole, entered into at all in the same serious spirit, nor carried out with the same careful and uniform administration, as those of the College Entrance Examination Board. Entrance examinations as at present carried on at the University have the reputation of being, as a whole, severe, and not easy. They are uneven, however, and in some cases no doubt justify the protest received from the principal of one of the largest high schools in the State (dated November 13, 1906): "The high schools are handicapped (in the matter of maintaining high standards) by the fact that their graduates who cannot obtain recommendation to the University, and even third- and second-year pupils who are doing unsatisfactory work in school, can successfully pass the entrance examinations of the University."

THE EXCEPTION IN REGARD TO ENGLISH

In the proposal to abolish entrance examinations an exception has been made with regard to English Composition and Oral Interpretation of Literature. Beginning with 1892 English Composition (until 1898 united with Elementary English Literature) has been the one subject prescribed for admission. Since 1893 English Composition has not been credited (except provisionally) on recommendation from high schools, although for some years it was virtually so credited from California schools through complete fulfillment of California requirements. English Literature was also included in this prohibition until 1905; and in 1905 Oral Interpretation of Literature was added, the amount of credit value assigned to Oral Interpretation being subtracted from English Composition.

The fact that English Composition is a prescribed subject for admission constitutes a sufficient reason for making it an exception to the general rule abolishing entrance examinations. The theory underlying this pre-

FACULTY LEGISLATION

Character requirements for entering students: In May, 1906, the Academic Council directed "that the Committee on Admission and Advanced Standing require each applicant (for admission) to present from his school complete and specific information as to scholarship and character, and that on the basis of such information the Committee accept only such applicants as they deem desirable." This action was taken with a proviso "that it be adopted as a guide to action for this summer by the Committee concerned, and that full consideration of the matter be made the special order of business for next fall." The experience of the Committee in carrying out this provision was made the subject of an extended report to the Academic Council September 7, 1906. The following extracts from the Committee's report summarize the results of this experiment and the conclusions reached:

"The wording of the Advisory Board recommendation afforded no clue to the principle of action which it was intended the Committee on Admission should follow. But the discussions which had preceded the adoption of the recommendation, and particularly the President's statement as to the desirability and necessity of limiting the number of students, had indicated the nature of the experiment to be undertaken by the Committee. In connection with the regular work of the Committee on Scholarship it had been seriously questioned whether, in addition to the stated weeding out of the poorest students, some way could not be found for removing the merely poor students—those of mediocre ability or lacking scholarly ambition, who, while managing to scrape through even to graduation, are nevertheless a severe drag upon the University and contribute toward a lowering of standards. Again, many of the problems of student government arise from the fact that present rules and methods of admission do not exclude applicants of vicious habits or tendencies, whose presence in the University is a continual menace to good order and to high standards of conduct. Toward any not yet admitted as students, the University has no responsibilities except such as it voluntarily chooses to assume. The right of the University is clear to accept only such students as it shall choose to accept. If, therefore, a way can be devised to exclude the mediocre and unambitious, on the one hand, and the weak and vicious, on the other, problems of student government will be greatly simplified and standards of conduct and scholarship improved.

"Mindful of these considerations, and of the expressed urgent necessity of limiting numbers, the Committee concluded that it was expected by the Academic Council to exclude, as far as possible, three classes of applicants:

- (1) Persons of mediocre ability, who give no positive promise of becoming genuine students.

- (2) Persons of good ability, but not mature or serious minded, and not likely to make good university students.

- (3) Persons of doubtful character, or frivolous disposition, or whose interests are likely to be absorbed by society, athletics, etc.

"This principle conceded, that the University may henceforth elect to receive only applicants of positive good promise intellectually and morally, there still remained the problem of how much discrimination was actually to be accomplished by the University.

"The resolution of the Academic Council directed the Committee to require the applicant to present the complete and specific information as

to scholarship and character upon which the Committee's action was to be based. The line of reasoning leading up to this position of the Council proceeded from the premise that discrimination of the sort intended can not be reached through direct coöperation with high school principals. To expect high school principals to enforce superior standards of scholarship and conduct as prerequisite to recommendation to the University, it was held, is to expect the impossible. The University must act independently, and take the full responsibility. But, manifestly, information as to scholarship must come from the principal or school authorities. The school would also be the most available source of knowledge concerning habits, tendencies, and conduct of applicants. General testimonials furnished by the applicant himself would be practically worthless as a basis of discrimination. If, therefore, the University is to act independently, and at its discretion reject credentials furnished by the school, and assume full responsibility, such information must be treated as strictly confidential—indeed, upon no other terms could it be obtained.

"A blank was therefore devised by the Committee covering certain specific points, and principals were asked to fill out these blanks and send them to the Committee as strictly confidential documents.

"During the summer (up to September 3, 1906) 460 of these documents have been received. They may be classified as follows:

Unqualifiedly favorable.....	193
Perfunctory, but favorable.....	140
Qualifiedly favorable.....	77
Perfunctory, but neutral.....	22
Qualifiedly unfavorable.....	27
Unqualifiedly unfavorable.....	1
Total.....	460

"In those listed as 'perfunctory,' no information was given other than monosyllabic replies to the printed questions. Perhaps a third of those listed as 'qualifiedly favorable' might have been rejected under a strict interpretation of the Council resolution; and if limitation of numbers had been the only consideration, equities being disregarded, all of those in the last three groups might have been refused admission.

"At first all statements were gone over individually and in detail by the full Committee. After the general principle of action had been developed only those calling for special consideration were brought before the Committee, the rest being checked up by the chairman.

"Twelve statements in all were indorsed 'not accepted' by the Committee. In nine of these cases, however, the action of the Committee was afterward reversed and the credentials accepted. Of the remaining three, from whom no response was received, and who made no attempt to reopen the matter, one was only partially recommended, and, even if his credentials had been accepted, would not have had credits enough to make admission probable. In the other two cases full credentials were offered, the one from a California State Normal School, the other from a California College. The net result of the experiment, therefore, so far as it affects numbers, was the apparent exclusion of two young women from the University.

"Your Committee respectfully submit that as a means of excluding undesirable students, or materially limiting numbers, the plan of the Academic Council has not been found practicable. The desirability of a higher standard of admission, both as regards character and scholarship, still remains, and it is recommended that further consideration be devoted to the subject through the appropriate committees and by the Council itself.

"It has been suggested that, irrespective of any possibility of using

the information collected for purposes of exclusion from the University, the present blank, or one more appropriate, be retained. The confidential statements of principals and others would be of great value to the Committees on Student Affairs and on Scholarship, and if used for information only would be more freely and fully given by school authorities. If such a blank is to be continued, the purpose of it should be made perfectly clear, both to the high school principal and to the University committees. Merely as a matter of curious reference to confirm later action of either committee, these statements will hardly be worth while. They will be of real value only in case the information there given is put into the hands of the University authorities and committees for immediate use in the way of corrective guidance, stimulation, and influence upon environment and habits. Not even in this form should such statements be accepted, without full consideration, as a complete substitute for the direct attempt to raise standards of admission."

This report was referred to the Council by the Executive Committee for further consideration.

In the Executive Committee, the whole question as to the relation of the University to the preparatory school, particularly with reference to acceptance of credentials on recommendation, was given extended consideration. As a result, the Executive Committee recommended, and the Council approved, a modification of the conditions of admission, which involved the following points:

- (1) Emphasis upon quality of preparation and intellectual promise, personal character, and seriousness of purpose.
- (2) The records of first-year students to be taken into account in determining as to the continuance of accrediting privileges to preparatory schools.

The following is a full statement of the action taken:

"The University will receive recommendations from preparatory schools accredited

(A) by (1) the New England College Entrance Certificate Board, (2) the North Central Association of Colleges and Secondary Schools, (3) colleges and universities of recognized standing;

(B) upon inspection undertaken or authorized by the University (such inspection to be temporarily waived in the case of schools which have sent five or more pupils to the University, and whose graduates have made satisfactory records in the University).

"Entrance credit will be granted on recommendation of the principal, provided: (a) the school maintains a full four-years' course of high school work; (b) the candidate has completed the full course and has been duly graduated after at least one year's attendance; (c) the time given to the subject and the amount of work covered are substantially as indicated in the outline of entrance subjects; (d) the grade of work is satisfactory (ordinarily not less than ten per cent above the lowest passing grade; but lower passing grades in a particular subject or subjects may be offset by a high general average or by decided intellectual promise); (e) the personal qualities and habits of the candidate are such as to commend him to the University authorities.

"It is the purpose of the University to emphasize (1) quality of preparation and intellectual promise, (2) personal character and seriousness of purpose. Principals are expected to exact a high standard of scholarship as preliminary to recommendation, and to withhold recommendation from

those who are undesirable or unpromising from the point of view of moral qualities or habits.

"Acceptable entrance credentials must show that the specific requirements prescribed by the University have been met; but in so far as the question of fulfilling requirements turns upon personal qualities and tendencies not clearly evident nor easily determined, it is the purpose of the University to follow the judgment of the principal, subject to the correction implied in the succeeding paragraph.

"The record of first-year students will be considered as additional evidence of the standing of preparatory schools, and of their good faith and success in meeting the requirements of the University, and such evidence will be made use of in determining as to the continuance of accrediting relations.

"The principal is not expected to give any information the substance of which he does not state, or is unwilling to state, to the candidate."

In this connection the following resolution, offered by Professor Peirce, was adopted by the Council:

"Resolved, That in view of the necessity on the part of this University of limiting the number of students, the Executive Committee be, and hereby is, instructed to examine the plan of admission by examination only, to ascertain the feasibility of the plan,—whether it would limit the number to those of superior qualifications,—and, having made careful study of the subject, to report its conclusion, with or without recommendation, to this Council."

The resolution was referred by the Executive Committee to a special sub-committee, which, not being ready to report, was continued for 1907–08.

Early in the year the Committee on Admission and Advanced Standing, having in view the small number of students entering on examination, and the desirability of co-operating with the College Entrance Examination Board, recommended the abolition of entrance examinations at the University.

This recommendation received the approval of the Executive Committee, and was transmitted to the Council January 11, 1907. Here decided opposition was manifested, and the Committee on Admission was asked to present a full report covering the facts of the case. This report, transmitted to the Council February 4, 1907, gives a historical resumé of admission requirements at Stanford, and is appended herewith (Appendix IV).

The recommendation of the Committee was finally rejected by the Council (February 20, 1907) and a substitute motion adopted retaining the August–September examinations. The Council also voted that principals' recommendations in English be accepted for credit on the same terms as recommendations in other subjects.

On recommendation of the Committee on Admission, approved by the Executive Committee, the following additional subjects were added to the supplementary entrance list (that is, to the subjects acceptable on recommendation from approved schools, but not subjects in which entrance examinations are offered by the University): Civics, Architectural Drawing, Music, Domestic Science, and Commercial Subjects. Except in the

cases of Commercial Subjects and Domestic Science, only subjects recognized by universities of high rank were thus added. The inclusion of Domestic Science and Commercial Subjects was based on the conviction that the serious work of Polytechnic and Commercial High Schools should receive appropriate recognition. The precise limits of this work were left undefined, to be determined after further consideration by the Committee on Admission.

A revision and further codification of the general legislation and standing regulations of the Faculty was undertaken by the Executive Committee, and the results of its labor approved by the Academic Council, May 1, 1907. Only minor changes affecting University policy were made. One change of importance, affecting the standing of first-year students, was the regulation requiring that such students, during their first semester in the University, complete at least half (instead of a third) of the work registered, in order to retain their standing in the University. The regulation requiring students, after their first semester, to make two-thirds of the work registered remains unchanged.

In March, 1906, action was taken abolishing the degree of Bachelor of Laws after May, 1906. On recommendation of the Department of Law, this action was modified (January 11, 1907) so as to provide that the degree of Bachelor of Laws be not conferred on students matriculating after April, 1906.

In the interest of "a more uniformly high standard of scholarship," the Registrar prepared and laid before the President, by direction of the Executive Committee, statistics covering the semester reports in elementary classes for the preceding three years.

Respectfully submitted,

O. L. ELLIOTT,
Registrar.

2. Open meetings of the Club have been held, addressed by Mr. O. K. Cushing, Mr. Cross, Mr. Henry George, Father Wilbur, Mr. Jack London, and Mr. Francis J. Heney.

3. Sections of the Club have been engaged in the study of Social Problems, Social Betterment, and Political Science. At the last meeting of the Club a plan was presented and formally adopted for the establishment of a local settlement.

4. Over \$2,000 have been collected by the Club for four charitable purposes:

(a) The Gerdes' Fund, for the benefit of the mother who lost her son by the fall of the chimney of the engine shop.....	\$1611 55
(b) The Hanna Burial Fund, the burial of a student killed in Encina Hall.....	350.00
(c) The Yoshimi Fund, collected for the benefit of the widow of a Japanese student.....	100 00
(d) A Christmas Tree and Entertainment, for 175 refugee children in Jefferson Square, San Francisco.....	75.00

. Pastoral Work. — In addition to the direction of the Social Service work, teaching and preaching, the chaplain has maintained personal relations with students through:

- (a) Office hours for consultation, daily.
- (b) Visits at halls and lodgings.
- (c) Weekly visits to students' hospital.
- (d) Entertaining.
- (e) Attendance at meetings of clubs and societies.

D. CHARLES GARDNER,
Chaplain.

Report of the President

69

University of Calcutta	2	University of the Pacific	1
California	12	Southern Cal.	2
Chicago	4	Washington	3
Iowa	2	Wisconsin	2
Michigan	4	Vassar College	1
Minnesota	1	Whitman College	1
Missouri	1	Whittier College	3
Nebraska	3	Western Univ. of Pennsylvania	1
Oregon	1	Yale University	1

FROM NORMAL SCHOOLS

Chico State Normal	2	San Diego State Normal	3
Indiana State Normal	1	San Jose State Normal	8
Los Angeles State Normal	2	Warrensburg (Mo.) State Nor.	1
Oswego (N. Y.) State Normal	1	Winona (Minn.) State Normal	1

FROM PREPARATORY SCHOOLS

Alameda H. S.	6	Dixon H. S.	1
Allen Prep. Sch. (Portland, Or.)	1	Eureka H. S.	4
Annie Wright Sem. (Tacoma)	2	Fresno H. S.	9
Astoria (Ore.) H. S.	2	Fruitvale H. S.	1
Banning H. S.	1	Fullerton H. S.	1
Belmont School	5	Gilroy H. S.	1
Berkeley Inst. (N. Y.)	1	Girls' H. S. (San Francisco)	2
Boone's University School	1	Girls' Collegiate Sch. (L. A.)	7
Bradley Poly. Inst.	1	Glenalmond College (G. B.)	1
California College	1	Glendale H. S.	2
Cal. Sch. Mech. Arts	4	Grand Junction (Colo.) H. S.	1
Carthage (Ind.) H. S.	1	Great Falls (Mont.) H. S.	1
Campbell H. S.	2	Hanford H. S.	3
Chamberlin Inst. (N. Y.)	1	Harker School	4
Chico H. S.	1	Harvard School (L. A.)	9
Clinton (Conn.) H. S.	1	Miss Head's School	1
Clovis H. S.	1	Hill Mil. Acad. (Portland, Or.)	1
Cobelskill (N. Y.) H. S.	1	Hollister H. S.	2
Colton H. S.	1	Honolulu H. S.	1
Colfax (Wn.) H. S.	1	Horton School	1
Compton H. S.	1	Ione H. S.	1
Corona H. S.	1	Kalispell (Mont.) H. S.	1
Council Bluffs H. S.	2	Kansas City Central H. S.	1
Crockett H. S.	2	Kidder Institute	2
Cumberland (B. C.) H. S.	1	La Grange (Ill.) H. S.	1
Davenport (Wn.) H. S.	1	Leipzig (Ger.) Realschule	1

CLASSIFICATION BY MAJOR SUBJECTS

	1903-04	1904-05	1905-06	1906-07
Greek	14	10	16	15
Latin.....	60	72	74	58
Germanic Languages.....	74	88	101	95
Romanic Languages.....	43	43	44	23
English.....	246	226	222	178
Philosophy	5	3	4	0
Psychology	3	5	7	6
Education	23	21	27	25
History	98	93	104	128
Economics.....	79	90	93	97
Law.....	212	209	308	299
Drawing.....	23	19	30	32
Mathematics	31	33	36	25
Physics	9	10	11	10
Chemistry	77	93	107	84
Botany.....	20	18	22	28
Physiology	73	71	66	64
Zoology	27	39	32	29
Entomology	12	12	14	12
Geology and Mining	118	124	127	126
Civil Engineering.....	85	118	138	146
Electrical Engineering.....	94	110	127	115
Mechanical Engineering.....	49	71	76	73
	1485	1568	1786	1668

DISTRIBUTION OF ENTERING CLASS, 1906-07

FROM COLLEGES, ETC.

Baltimore Polytechnic Institute	1	Lawrence University	1
Butler College	1	Lewis Institute	1
Centre College (Ky.)	2	Mills College	1
Cornell University	3	Montana Agricultural College	1
Denison University	1	National Normal University	1
Fairmount (Kansas) College	1	Oberlin College	2
Fort Worth (Texas) University	1	Occidental College	2
Georgetown University	1	Oregon Agricultural College	1
Grand Island (Neb.) College	1	Pomona College	9
Helsingfors and Upsala Univ. S.	1	Radcliffe College	1
Hillsdale College	1	Santa Clara College	1
Illinois College	1	Sheffield Scientific School	1
Indiana University	1	St. Vincent's College	1
Iowa State College	2	Syracuse University	1
Kansas Wesleyan University	1	Trinity College (Conn.)	2

Report of the President

69

University of Calcutta	2	University of the Pacific	1
California	12	Southern Cal.	2
Chicago	4	Washington	3
Iowa	2	Wisconsin	2
Michigan	4	Vassar College	1
Minnesota	1	Whitman College	1
Missouri	1	Whittier College	3
Nebraska	3	Western Univ. of Pennsylvania	1
Oregon	1	Yale University	1

FROM NORMAL SCHOOLS

Chico State Normal	2	San Diego State Normal	3
Indiana State Normal	1	San Jose State Normal	8
Los Angeles State Normal	2	Warrensburg (Mo.) State Nor.	1
Oswego (N. Y.) State Normal	1	Winona (Minn.) State Normal	1

FROM PREPARATORY SCHOOLS

Alameda H. S.	6	Dixon H. S.	1
Allen Prep. Sch. (Portland, Or.)	1	Eureka H. S.	4
Annie Wright Sem. (Tacoma)	2	Fresno H. S.	9
Astoria (Ore.) H. S.	2	Fruitvale H. S.	1
Banning H. S.	1	Fullerton H. S.	1
Belmont School	5	Gilroy H. S.	1
Berkeley Inst. (N. Y.)	1	Girls' H. S. (San Francisco)	2
Boone's University School	1	Girls' Collegiate Sch. (L. A.)	7
Bradley Poly. Inst.	1	Glenalmond College (G. B.)	1
California College	1	Glendale H. S.	2
Cal. Sch. Mech. Arts	4	Grand Junction (Colo.) H. S.	1
Carthage (Ind.) H. S.	1	Great Falls (Mont.) H. S.	1
Campbell H. S.	2	Hanford H. S.	3
Chamberlin Inst. (N. Y.)	1	Harker School	4
Chico H. S.	1	Harvard School (L. A.)	9
Clinton (Conn.) H. S.	1	Miss Head's School	1
Clovis H. S.	1	Hill Mil. Acad. (Portland, Or.)	1
Cobelskill (N. Y.) H. S.	1	Hollister H. S.	2
Colton H. S.	1	Honolulu H. S.	1
Colfax (Wn.) H. S.	1	Horton School	1
Compton H. S.	1	Ione H. S.	1
Corona H. S.	1	Kalispell (Mont.) H. S.	1
Council Bluffs H. S.	2	Kansas City Central H. S.	1
Crockett H. S.	2	Kidder Institute	2
Cumberland (B. C.) H. S.	1	La Grange (Ill.) H. S.	1
Davenport (Wn.) H. S.	1	Leipzig (Ger.) Realschule	1

Lewiston (Id.) H. S.	1	Renssaeler (Ind.) H. S.	1
Lodi H. S.	2	Riverside H. S.	7
Long Beach H. S.	1	Rowland Hall (Salt Lake) . . .	1
Los Angeles H. S.	17	Sacramento H. S.	8
Los Gatos H. S.	2	St. Matthews Sch. (San Mateo) 2	
Lowell H. S.	4	St. Vincent's College	2
Lyceum School	3	San Bernardino H. S.	7
Manzanita Hall	3	Salinas H. S.	4
Macalester Acad. (St. Paul, M.) 1		Salt Lake H. S. (Utah)	2
Mackenzie School (N. Y.) . . .	1	San Jose H. S.	16
Marlborough School	2	San Diego H. S.	5
Marshalltown (Ia.) H. S. . . .	1	San Mateo H. S.	1
Merced H. S.	1	San Luis Obispo H. S.	5
Minneapolis Central H. S. . . .	1	Santa Ana H. S.	3
Minneapolis East H. S.	1	Santa Barbara H. S.	3
Mission H. S. (S. F.)	4	Santa Clara H. S.	5
Modesto H. S.	2	Santa Maria H. S.	1
Moline H. S.	1	Santa Monica H. S.	3
Monrovia H. S.	1	Santa Rosa H. S.	6
Mountain View H. S.	2	St. Paul (Minn.) Mch. Arts H.S. 2	
Mount Tamalpais Mil. Acad. . .	4	Selma H. S.	1
Muskegon (Mich.) H. S.	1	Santa Cruz H. S.	1
Nevada (Ia.) H. S.	1	Sandusky H. S.	1
New York H. S. of Commerce . .	1	South Canon (Colo.) H. S. . .	1
North Platte (Neb.) H. S. . . .	1	Spokane (Wn.) H. S.	9
North Tonawanda (N. Y.) H. S. .	1	Stockton H. S.	1
Notre Dame H. S. (San Jose) . .	1	Sutter H. S.	2
Oahu College	2	Tacoma (Wn.) H. S.	1
Oakland H. S.	1	Throop Polytechnic Inst. . . .	11
Ogden (Utah) H. S.	1	Truckee H. S.	1
Olean (N. Y.) H. S.	2	Terre Haute (Ind.) H. S. . . .	2
Omaha (Neb.) H. S.	1	Trinity School (S. F.)	1
Orange H. S.	1	Tulare H. S.	2
Oroville H. S.	1	Ukiah H. S.	3
Palo Alto H. S.	21	University School (S. F.) . . .	2
Pasadena H. S.	7	Univ. of Utah (Prep.)	1
Pasadena Eng. Class. School . .	1	Univ. of Minnesota (Agr.) . . .	1
Paso Robles H. S.	1	Ventura H. S.	3
Phoenix (Ariz.) H. S.	1	Visalia H. S.	5
Pomona Coll. (Prep.)	2	Washburn School	3
Portland Academy (Ore.)	2	Washington (D. C.) Cen. H. S. .	2
Polytechnic H. S. (S. F.)	4	Washington (D. C.) M. Tr. H.S. .	1
Prescott (Ariz.) H. S.	1	Waterbury (Vt.) H. S.	1
Red Creek (N. Y.) H. S.	1	Waukegan (Ill.) H. S.	1
Redlands H. S.	5	Whittier H. S.	1
Redwood H. S.	6		

REGISTRATION OF STUDIES

Fifteen units constitute a normal semester's work. The following was the actual registration during 1906-07:

		Number of Students	
		First Semester	Second Semester
For 1 unit		1	1
2		0	3
3		3	2
4		6	4
5		3	4
6		5	6
7		1	5
8		8	5
9		20	7
10		24	27
11		42	56
12		58	69
13		166	182
14		238	201
15		460	456
16		242	175
17		145	119
18		100	103
19		0	2
20		0	1
Over 20		0	0

PETITIONS BEFORE COMMITTEE ON REGISTRATION, 1906-07

	First Semester	Second Semester
Total number of petitions acted upon	869	547
To change registration by dropping subjects, or taking up new subjects, or both.	501	283
To change major subject	93	21
To register for fewer than thirteen units	151	115
To register for more than eighteen units	12	6
For leave of absence	72	54
Miscellaneous	35	68

STATISTICS OF GRADUATION

The total number of degrees conferred in 1906-07 (not counting those conferred Sept. 7, 1906) was 234, distributed as follows:

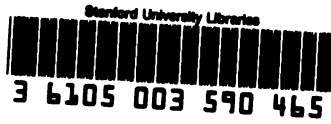
	Ph.D.	J.D.	A.M.	Engr.	LL.B.	A.B.
Greek	1
Latin	1	16
Germanic Languages	12
Romanic Languages	1	7



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[REDACTED]	[REDACTED]
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